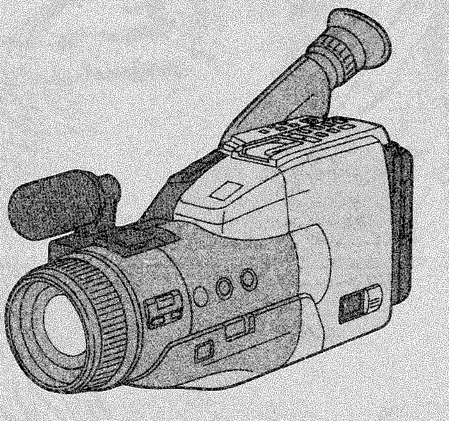
JVC

SERVICE MANUAL

VHS VIDEO MOVIE

GR-M3EG/EK GR-M5EG/EK



VHSC
PAL

Compact VHS
videomovie

SPECIFICATIONS *(The specifications shown pertain specifically to the model GR-M3EG)*

Format : VHS PAL standard
Power source : DC 6 V ⎓
Power consumption : 8 W
Signal system : PAL-type
Video recording system : Luminance: FM recording
Colour: Converted sub-carrier direct recording
Conforms to VHS standard
Cassette : VHSC cassette
Tape speed : 23.39 mm/sec
Recording time
Max. : 45 minutes (with EC-45 cassette)

VIDEO
Output : 1 Vp-p, 75 ohms, unbalanced (via AV OUT connector)

AUDIO
Output : –6 dBs, 1 k-ohm (via AV OUT connector)

CAMERA
Pick up : 1/3"-format CCD
Minimum required illumination : 3 lux
Illumination range : 3 to 100,000 lux
Lens : F/1.4, f = 6.7 to 54 mm, 8:1 power zoom lens with auto iris and macro control, filter diameter 52 mm
Viewfinder : Electronic viewfinder with 0.6" black/white CRT
Selectable high-speed shutter : Switchable (1/50, 1/60, 1/125, 1/250, 1/500, 1/1000, 1/4000 second)
White balance adjustment : Auto/Manual 9 steps

GENERAL
Operating temperature : 0°C to +40°C
Operating humidity : 35% to 80%
Storage temperature : –20°C to +50°C
Weight : Approx. 810 g
Dimensions : 257(W) x 127(H) x 115(D) mm (incl. viewfinder)

AA-V10EG SPECIFICATIONS
Power requirement : AC 110 to 240 V∼, 50/60 Hz
Power consumption : 23 W
Output : DC 8.5 V ⎓, 1.3 A (Charge),
DC 6.3 V ⎓, 1.8 A
(VideoMovie)
Charging system : Constant current, peak detection, timer controlled
Dimensions : 150(W) x 42(H) x 68(D) mm
Weight : Approx. 380 g

PROVIDED ACCESSORIES

AC power adapter/battery charger	AA-V10EG
Battery pack	BN-V12U
Battery for clock operation	CR2025
VHS-C cassette	EC-30
A/V output cable	VC-V826E
Cable adapter	

E. & O.E. Design and specifications subject to change without notice.

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No. 86191
August 1992

NOTE: For a technical description, please refer to Technical Guide VTG86034 GR-M3/M5 PAL.

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The following table lists the difference points between models GR-M3EG/EK and GR-M5EG/EK in this series.

Model Item	GR-M3EG	GR-M3EK	GR-M5EG	GR-M5EK
PACKING CASE	YQ31205-5	YQ31205-8	YQ31205-6	YQ31205-7
POLY BAG	QPGA025-03505	PQM30023-5	QPGA025-03505	PQM30023-5
INSTRUCTION	YU30052-285	YU30052-286	YU30052-287	YU30052-288
E. DISTRI. LIST	NOT USED	BT-20066A	NOT USED	BT-20066A
GUARANTY CARD	NOT USED	BT-20060	NOT USED	BT-20060
S STRAP ASSY	NOT USED	YQ10188A-1	NOT USED	YQ10188A-1
BATTERY	NOT USED	UM-3DJ	NOT USED	UM-3DJ
POLY BAG	NOT USED	QPGA005-01005	NOT USED	QPGA005-01005
REMOTE CONTROLLER	NOT USED	NOT USED	YQ20622	YQ20622
LOWER CASE	YQ10384C-4	YQ10384C-4	YQ10384D-4	YQ10384D-4
UPPER CASE	YQ20574C-2	YQ20574C-2	YQ20574D-2	YQ20574D-2
CASSETTE COVER ASSY	YQ31190E-1	YQ31190E-1	YQ31217D-2	YQ31217D-2
OPERATION UNIT	YQ10369-3	YQ10369-4	YQ10369-7	YQ10369-8
RING ASSY	YQ31192A	YQ31192A	NOT USED	NOT USED
FOCUS UNIT	NOT USED	NOT USED	YQ20585A	YQ20585A
DC LIGHT ASSY	NOT INCL.	NOT INCL.	INCL.	INCL.
MAIN BOARD ASSY	YB10110D-03	YB10110A-03	YB10110E-03	YB10110B-03
TALLY BOARD ASSY	NOT USED	NOT USED	YB30092A	YB30092A
OPERATION BOARD ASSY	YQ31312	YQ31312	YQ31312-2	YQ31312-2

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

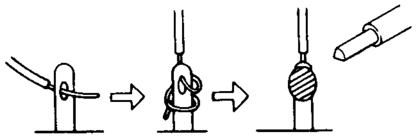


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

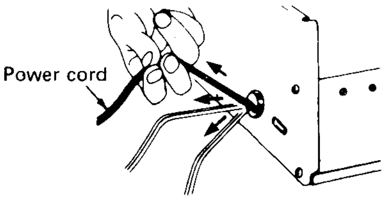


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

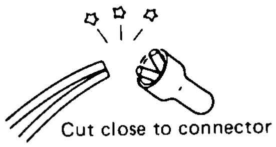


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

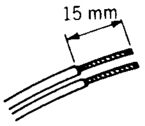


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

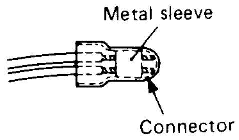


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

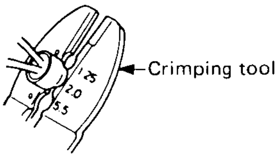


Fig. 6

(5) Check the four points noted in Fig. 7.

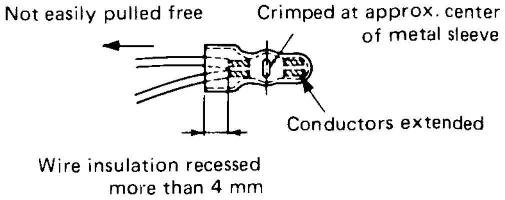

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

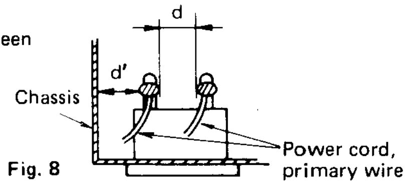


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

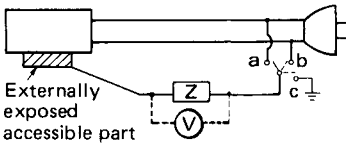
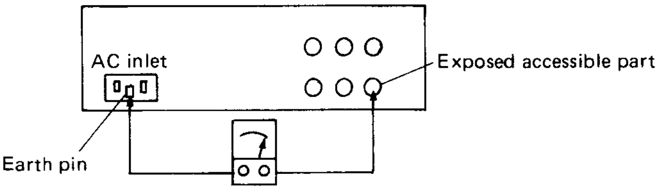


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.



Milli ohm meter

Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

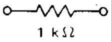
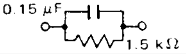
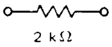
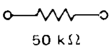
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada		i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia		i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
			i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

INSTRUCTIONS

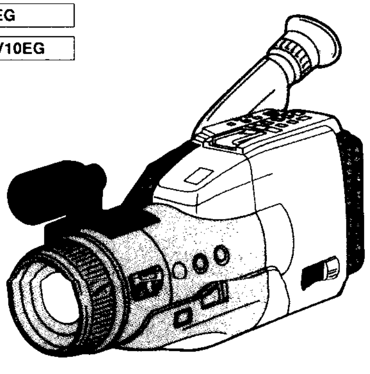
GR-M3

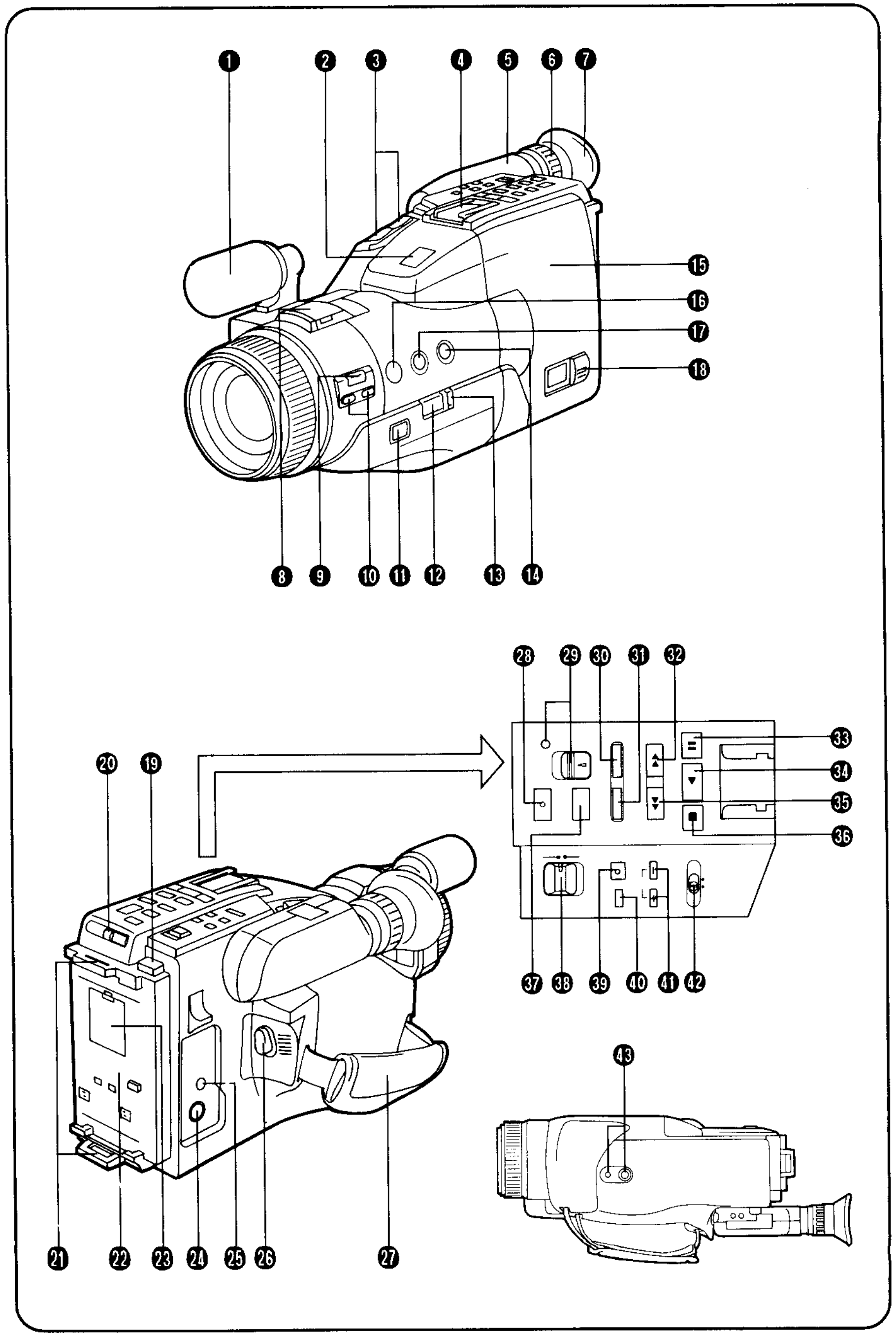
CAMERA-RECORDER/PLAYER

MANUEL D'INSTRUCTIONS: CAMERA-ENREGISTREUR LECTEUR
BEDIENUNGSANLEITUNG: KAMERA-RECORDER
MANUAL DE INSTRUCCIONES: CAMARA DE VIDEO
GEBRUIKSAANWIJZING: KAMERA RECORDER
BRUKSANVISNING: KAMERA BANDSPELARE
MANUALE DI ISTRUZIONI: TELECAMERA REGISTRATORE
BETJENINGSVEJLEDNING: KAMERA-OPTAGER AFSPILLER
KÄYTTÖOHJEET: KAMERANAUHURI/SOITIN

Specifically for the GR-M3EG/AA-V10EG
Spécial pour le GR-M3EG/AA-V10EG
Für modellausführung GR-M3EG/AA-V10EG
Especialmente para la GR-M3EG/AA-V10EG
Speciaal voor de GR-M3EG/AA-V10EG
Speciellt avsedd för GR-M3EG/AA-V10EG
Specifico per il GR-M3EG/AA-V10EG
Specielt for GR-M3EG/AA-V10EG
Erityisesti malleille GR-M3EG/AA-V10EG

Compact VHS
videomovie
VHS C
PAL





SAFETY PRECAUTIONS

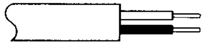
WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

The AA-V10EG AC Power Adapter/Battery Charger should be used with 110 — 240 V∿, 50/60 Hz only.
Caution:
To prevent electric shocks and fire hazards, do NOT use any other power source.

IMPORTANT (In the United Kingdom)
Mains Supply (240 V∿, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code:

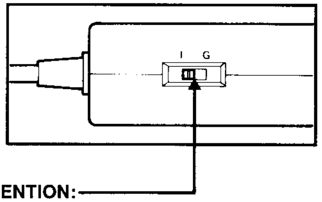


If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.
Note
We recommend that you should disconnect the AC cord from the outlet.

VHS C PAL High Quality

- VideoMovie is designed exclusively for the VHS-C video cassette. Only cassettes marked VHS-C can be used with this unit.
- HQ VHS is compatible with existing VHS equipment.

Warning on lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate.
Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.



ATTENTION:
The system select switch on the side of the optional RF-V3E RF unit has been set to G (Continental PAL, 5.5 MHz).

CAUTION:
To prevent shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified personnel.

NOTES:
- The rating plate (serial number plate) and safety caution are on the bottom of the main unit.
- The rating plate (serial number plate) of the AC power adapter/battery charger is on its bottom.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

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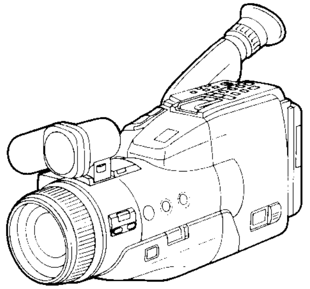
JVC Printed in Japan

MAJOR FEATURES

- **Twilight mode**
- **Full Range AF system with Auto Macro**
- **F1.4, 8x power zoom lens**
- **3-Lux low-light sensitivity**
- **Auto date titler**
- **Multiple-speed shutter with 1/4000-sec.**
- **Cinema mode facility**
- **Age insertion**
- **Auto head cleaner**
- **Detachable DC light (optional)**



This VideoMovie is designed to be used with PAL-type colour television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V12U/BN-V14U/BN-V22U/BN-V50U/BN-V60U battery packs and, to recharge them, the provided multi-voltage AC power adapter/battery charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

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CONTROLS AND CONNECTORS

Refer to the diagrams on the front foldout page.

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㉑	Eyelets for shoulder strap	26
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㉖	Recording Start/Stop button	9
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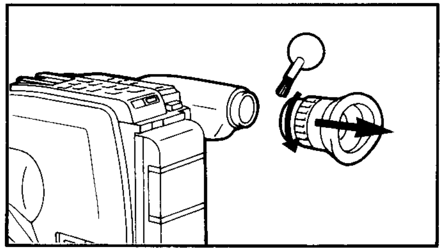
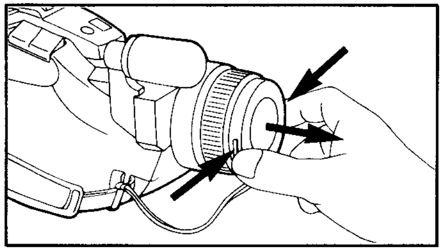
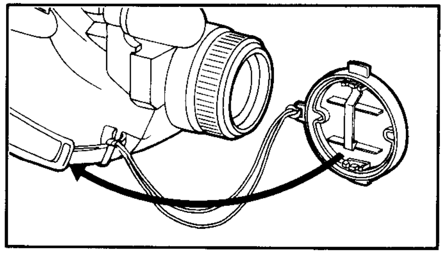
㉘	DISPLAY on/off button	11
㉙	POWER switch with LED indicator	9
㉚	C. RESET (counter reset) button	20
㉛	C. MEMORY (counter memory) button	20
㉜	REW/RETAKE R button	12, 19
㉝	PAUSE button	20
㉞	PLAY button	19
㉟	FF/RETAKE F button	12, 19
㊱	STOP button	19
㊲	EDIT/Q. REVIEW button	23
㊳	PLAY/CAMERA select switch	8
㊴	Display MODE button	11
㊵	Date/Time adjust SELECT button	8
㊶	Date/Time adjust SET/TRACKING (–/+) buttons	8, 19
㊷	Tape length select switch	10
㊸	Tripod mounting socket	26



Cleaning the eyepiece
The viewfinder eyepiece can be removed for cleaning. Turn the eyepiece counterclockwise and pull it out.

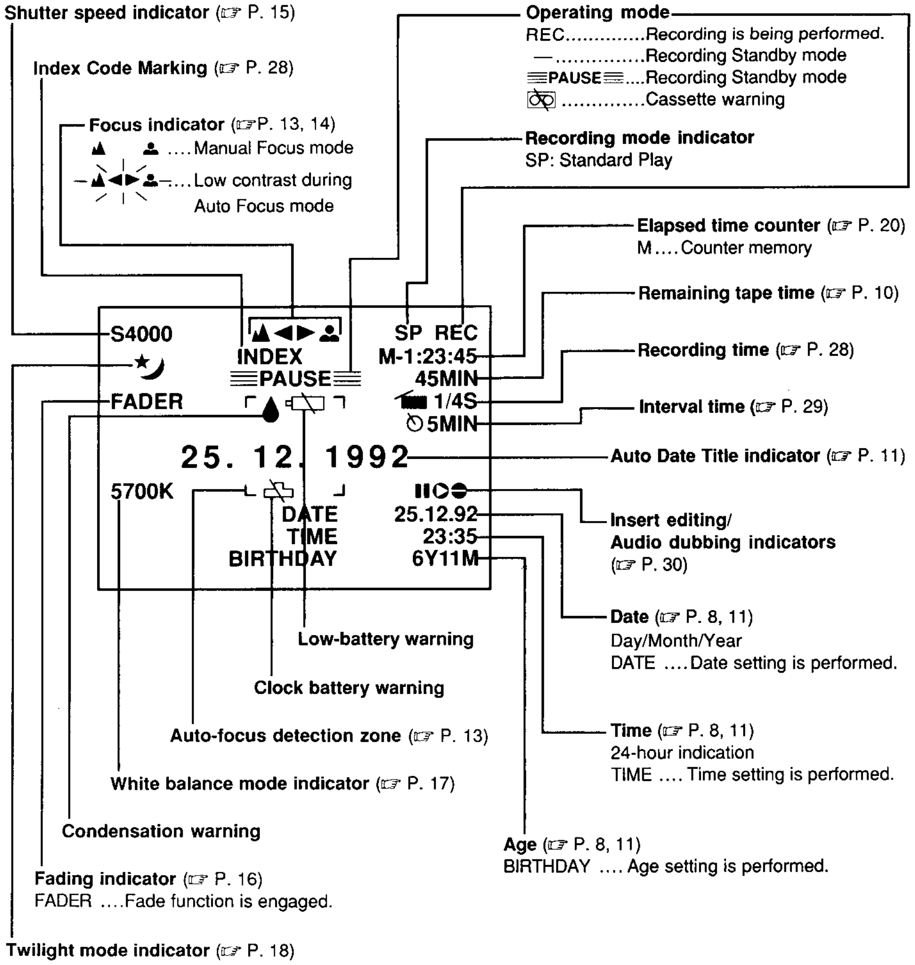


Remove/reattach the lens cap
Remove or reattach the lens cap by pressing the tabs on either side of the lens cap.



Attaching the lens cap to the hand grip, prevents it swinging while shooting.

VIEWFINDER INDICATIONS



Shutter speed indicator (☞ P. 15)

Index Code Marking (☞ P. 28)

Focus indicator (☞P. 13, 14)
▲ ▲ ....Manual Focus mode
–▲◀▶▲–....Low contrast during Auto Focus mode

Operating mode
REC..............Recording is being performed.
—...............Recording Standby mode
≡PAUSE≡....Recording Standby mode
..............Cassette warning

Recording mode indicator
SP: Standard Play

Elapsed time counter (☞ P. 20)
M....Counter memory

Remaining tape time (☞ P. 10)

Recording time (☞ P. 28)

Interval time (☞ P. 29)

Auto Date Title indicator (☞ P. 11)

Insert editing/
Audio dubbing indicators
(☞ P. 30)

Date (☞ P. 8, 11)
Day/Month/Year
DATE ....Date setting is performed.

Low-battery warning

Clock battery warning

Auto-focus detection zone (☞ P. 13)

Time (☞ P. 8, 11)
24-hour indication
TIME .... Time setting is performed.

White balance mode indicator (☞ P. 17)

Condensation warning

Age (☞ P. 8, 11)
BIRTHDAY .... Age setting is performed.

Fading indicator (☞ P. 16)
FADER ....Fade function is engaged.

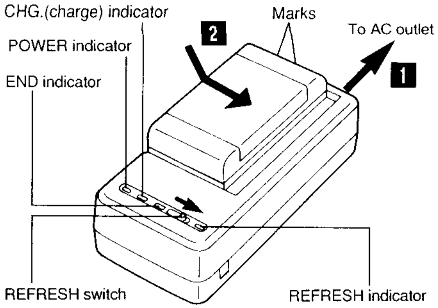
Twilight mode indicator (☞ P. 18)

ON-SCREEN DISPLAY

The viewfinder indications can also be displayed on the screen of a monitor connected to the VideoMovie.

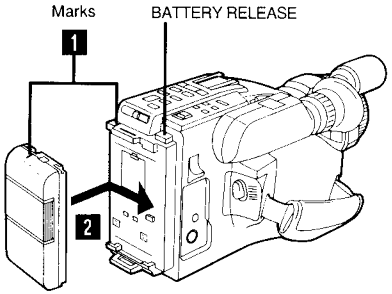
- Connect the VideoMovie to a video monitor. Press MODE button to select the On-Screen Display mode. The viewfinder indications appear on the monitor screen. (See page 11.)
- The on-screen display is available in the Rehearsal or Record-Pause mode.

PREPARATIONS



	Charging time	Discharging time
BN-V12U	approx. 70min.	approx. 210 min.
BN-V14U	approx. 80min.	approx. 270 min.
BN-V22U	approx. 130min.	approx. 420 min.
BN-V50U	approx. 170min.	approx. 510 min.
BN-V60U	approx. 130min.	approx. 420 min.

- The diagrams above indicate the approximate charging and discharging times of battery packs that are fully charged.
- Charging time and discharging time will vary depending on the ambient temperature and the status of the battery pack.



Recording time

	Video light is OFF.	Video light is ON.
BN-V12U	approx. 45 min.	approx. 25 min.
BN-V14U	approx. 50 min.	approx. 30 min.
BN-V22U	approx. 90 min.	approx. 65 min.
BN-V50U	approx. 105 min.	approx. 80 min.
BN-V60U	approx. 90 min.	approx. 65 min.

- The recording time per charge is influenced by the duration of the recording standby, frequency of zooming, etc. It is safer to have spare battery packs.

POWER SUPPLY SYSTEM

The convenient 3-way power supply system gives you a choice of the most appropriate power supply unit, depending on the application.

- No function is available without power supply.
- Do not use any power supply other than specified.
- Never attempt to use these power supply units with any equipment other than the VideoMovie.
- The provided AC Adapter/Battery Charger features automatic voltage selection in the AC range from 110 V to 240 V.

WITH BATTERY PACK

The battery pack has been kept in the uncharged state for shipment. Therefore, before use, be sure to charge it.

Charging the battery pack

1 Connect the AC power cord to a wall outlet.
— The power indicator lights.

2 Align marks and slide the battery pack in the direction of the arrow until it locks in place.
— The CHG. indicator lights.
— When charging has been completed, the END indicator will light.

3 Slide the battery pack in the opposite direction of the arrow.

Attaching the battery pack

- Before attaching the battery pack, insert the lithium battery.(☞ P.8)

1 Align mark on battery pack with similar mark on back of VideoMovie.

2 Slide the battery pack into place in the direction of the arrow until it locks in place.

To remove the battery pack:

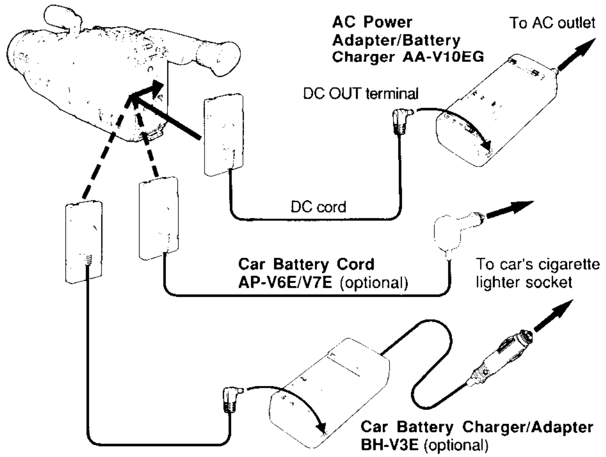
Slide out the battery pack while pressing BATTERY RELEASE.

Using the REFRESH feature

The REFRESH feature on the AC power adapter allows you to completely discharge the power from the battery pack before charging. After charging the battery pack several times, the actual battery operating time will gradually decrease. For this reason it is recommended to use the REFRESH feature only after every 5 charges.

1 Attach the battery pack to the adapter as illustrated above.

2 Slide REFRESH in the direction of the arrow.
— The REFRESH indicator will light and discharging will begin.
— After discharging is completed, the indicator will go off.


AC Power Adapter/Battery Charger AA-V10EG
To AC outlet
DC OUT terminal
DC cord
Car Battery Cord AP-V6E/V7E (optional)
To car's cigarette lighter socket
Car Battery Charger/Adapter BH-V3E (optional)

WITH AC POWER

Use the AC Power Adapter/Battery Charger.

Note:

This unit can be used with 110 V to 240 V power supplies. Selection is automatic and no adjustment is required.

IN A CAR

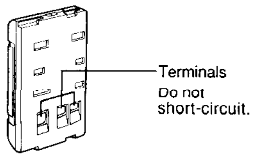
Use the optional BH-V3E Car Battery Charger or AP-V6E/AP-V7E Car Battery Cord. Before use, refer to the instruction booklet.

Notes:

- Do not repeatedly recharge a battery pack without fully discharging it. Its service life will decrease. Use the REFRESH feature after every 5 charges.
- Even if a battery pack is fully charged, but is not used, it naturally discharges gradually. Be sure to recharge the battery pack just before using it, or the day before you intend to use it.
- This unit becomes warm due to the flow of electric current inside. Operate it in places having good ventilation. Do not allow it to discharge in a container, such as a bag, etc. Blocking the ventilation causes the temperature inside the unit to rise, possibly resulting in a damaged unit.
- If either recharging or discharging is stopped in the middle of the process, remove the battery pack before unplugging the AC cord.
- This unit incorporates an over-discharging protection circuit; however, immediately remove the battery pack from this unit after discharging has been completed to maintain the battery pack's capacity.
- If used near a radio, the AC power adapter may interfere with reception.
- Be sure to unplug the DC cord before charging or discharging the battery pack.
- Before storing the battery pack for a long period it is recommended to discharge it. To discharge the battery pack, unplug the AC adapter and attach the battery pack before setting the REFRESH switch in the direction of the arrow. Slide the REFRESH switch in the direction of the arrow. The REFRESH indicator will light. When discharge is completed, the indicator will go off.
- The REFRESH feature will not function if the power status of a battery pack is discharged (No power remains).
- When the CHG.indicator is blinking, the battery pack has become hot. Wait for a while for the battery pack to cool. With a just-purchased battery pack, or with a battery pack that has been stored for a long period, the CHG.indicator may not light properly. In such a case, remove and reattach the battery pack again, then do the recharging procedure. The CHG.indicator should light during recharging to indicate, the battery pack is normal. If this is not the result, consult your nearest JVC dealer.

A WORD ON THE EXCLUSIVE BATTERY PACKS

The battery packs are nickel-cadmium batteries and nickel-metal hydride batteries. Be sure to carefully read the caution attached to the battery pack.

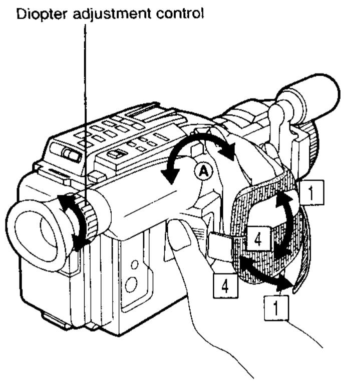


Temperature ranges:

The recharging time is based on room temperature of 20°C.
The lower the temperature, the longer the recharging time.

For charging: 10°C to 35°C
For operating: 0°C to 40°C
For storing: –10°C to 30°C

PREPARATIONS (Cont'd)



ADJUSTING THE GRIP STRAP

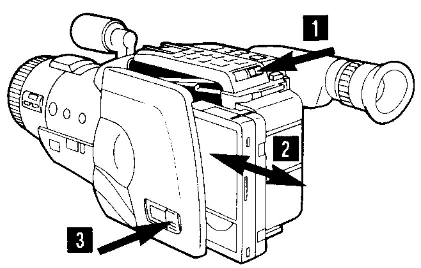
1 Separate the Velcro strip to expand the loop.
2 Pass your right hand through the loop and grasp the grip.
3 Adjust the length of the strap so that your thumb and fingers can easily manipulate the Recording Start/Stop button and power zoom buttons.
4 Refasten the Velcro strip.

VIEWFINDER ADJUSTMENT

- **Positioning**
  The viewfinder can be positioned for best viewability (Ⓐ).
- **Diopter adjustment**
  The viewfinder lens can be adjusted to suit the operator's eyesight.

1 Set PLAY/CAMERA to "CAMERA".
2 Slide POWER to turn power on.
3 Turn the diopter adjustment control until the indications in the viewfinder are clearly focused.

LOADING AND UNLOADING A CASSETTE



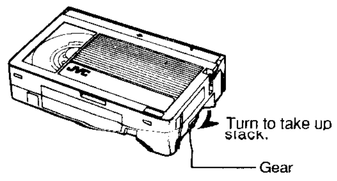
LOADING

1 Slide EJECT. — The cassette holder opens.
2 Insert the cassette with its label facing outward.
3 Press PUSH to close and lock the cassette holder.

UNLOADING

1 Slide EJECT. — The cassette holder opens.
2 Remove the cassette.
3 Press PUSH to close and lock the cassette holder.

Notes:

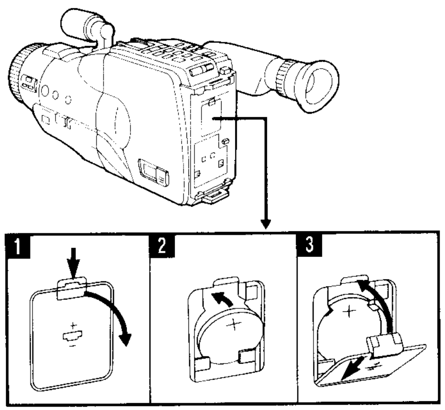


- Ensure that tape is not slack inside the cassette, then load the cassette correctly.
- Do not repeat loading and unloading of the cassette without running the tape, as this will slacken the tape, causing tape damage.
- The cassette holder can be opened even when the power is off.

DATE/TIME/BIRTHDAY SETTING

CLOCK (LITHIUM) BATTERY INSERTION

Necessary for clock and date/time/age settings.
* Switch off the unit's power and remove the power suppply unit before inserting or removing the clock battery.



1 Remove the clock battery compartment cover while pressing the release tab.
2 Insert the provided lithium battery with the plus (+) side up by sliding it in the direction of the arrow, and pushing it down.
  * When removing the battery, slide it in the direction of the arrow and lift it up.
3 Close the compartment cover until it clicks in place.

Warning on lithium battery
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of it in fire.

(See Warning on lithium battery, ☞ P.2)

SETTING DATE/TIME/BIRTHDAY

Before adjusting the date, time and birthday for the first time or after replacing the batteries.

1 Set PLAY/CAMERA to "CAMERA".
2 Slide POWER to turn power on.
3 Press DISPLAY. — The day blinks.
4 Press SET to choose the correct day.
5 Press SELECT to select the next item to change, with the item selected changing in the sequence below:

Date: Day → Month → Year
Time: Hour → Minute
Birthday: Day → Month → Year → Finish Adjustment

6 Procedures in steps 4 and 5 allow you to set Date and Time. After the Time has been set proceed to the Birthday setting.

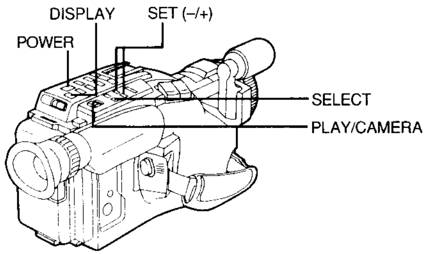
Setting the "Birthday"
The VideoMovie is provided with a "Birthday" memory function so that once someone's date of birth is entered in memory, the unit displays and records his or her age, automatically calculated and expressed in on the scenes.

- Age-indication appears as follows:

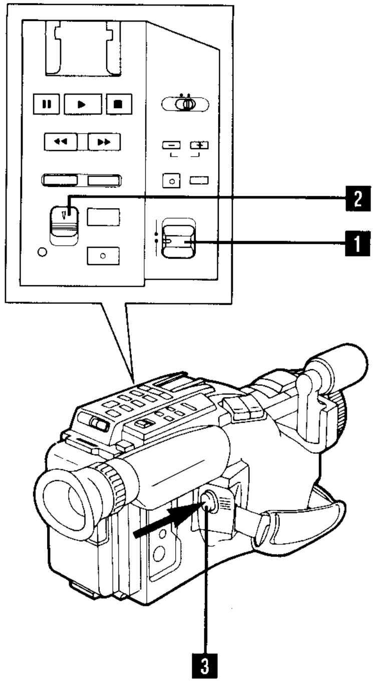
Under one-month-old	1D to 31D
Under one-year-old	1M to 11M
Under 7-year-old	1Y0M to 6Y11M
7 and over 7-year-old	7Y to 99Y

7 Make the settings for the items of BIRTHDAY as described in steps 4 and 5.
8 After all items have been set, press the SELECT.
— Now that the setting is completed, blinking stops. The date will appear after the date, time and age have been displayed for about 3 seconds.

Notes:
- The clock begins timekeeping when the minute portion stops blinking and remains constantly lit. While the Date and Time are blinking, the clock does not keep time. Be sure to confirm the correct time when setting the Birthday.
- When re-adjusting the data, press DISPLAY to display each item and press SET and SELECT to correct them. After adjustment is completed, the date, time and age appear for about 3 seconds, then the display returns to the mode before correcting.



RECORDING OPERATION



SHOOTING

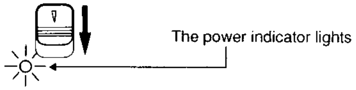
Preparations

- Supply power.(☞ P.5)
- Insert a video cassette correctly. (☞ P.7)
- Adjust the grip strap. (☞ P.7)

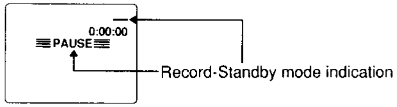
1. To enter the Record-Standby mode

❶ Set PLAY/CAMERA to "CAMERA".

❷ Slide POWER to turn power on.

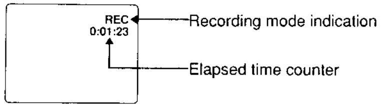


— The VideoMovie enters the Record-Standby mode.
The aimed-at scene will appear on the viewfinder screen.



2. To shoot the scene

❸ Press the Recording Start/Stop button to start recording.

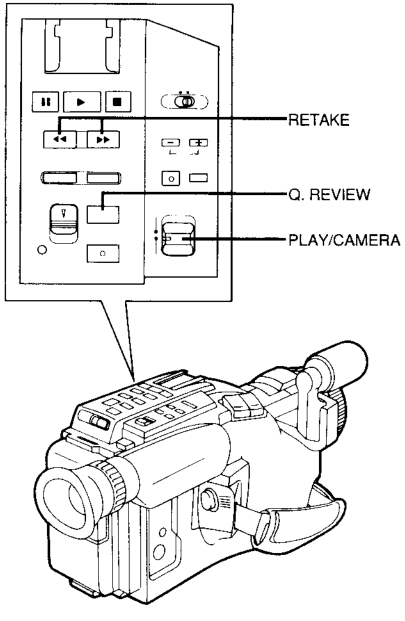


❹ To stop recording temporarily.
Momentarily press the Recording Start/Stop button once again.

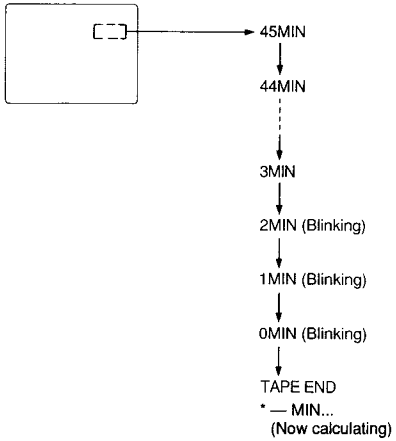
- To restart recording.
  Press the Recording Start/Stop button.
- Repeating steps ❸ and ❹ produces assemble recordings.

Notes:

- For a longer pause, slide POWER to turn power off to save power.
- When a tape reaches its end during recording, "TAPE END" indicator will appear in the viewfinder and POWER itself off automatically if left for longer than 5 minutes.
- If the Record-Standby mode continues for longer than about 5 minutes, the unit switches itself off automatically. To restart recording, turn the power on and press the Recording Start/Stop button. This makes clean assembled recordings possible even after a long pause.



Viewfinder



QUICK REVIEW

If you want to review the end of the last recording for confirmation, use this function.

- Press Q. REVIEW from the Record-Standby mode.
  — The tape will be rewound for about 2 seconds of program time and played back automatically for this section, after which it will pause in the Record-Standby mode for the next shot.

Note:
Distortion might occur when playback starts. This is normal.

AUTO-REHEARSAL

Rehearsal mode is automatically engaged in the following situations:
PLAY/CAMERA is set to the "CAMERA" position and;

- no cassette is loaded, or
- a cassette without its safety tab is loaded.
- Rehearsal mode is not engaged when PLAY/CAMERA is set to "PLAY".

RETAKE

While recording, you may decide to re-record certain segments. The Retake function is convenient for this.

❶ Make sure the VideoMovie is in the Record-Standby mode. (If not, engage the mode.)

❷ Press either RETAKE to reach the point where you wish a new recording to start.

- When RETAKE is released, the camera will enter the Record-Standby mode again.

❸ Press the Recording Start/Stop button.
— Recording starts.

Note:
Noise may appear during Retake. This is normal.

SET THE TAPE LENGTH

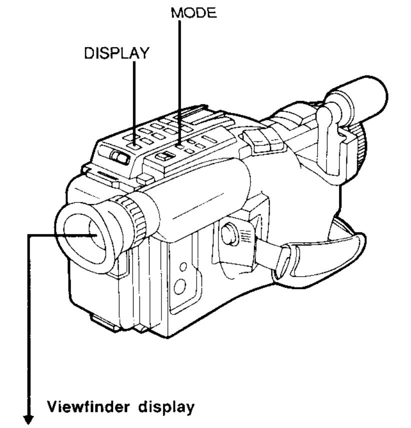
The tape remaining time is displayed in the viewfinder as shown. Before shooting, set the tape length select switch according to the tape being used.

- **EC-30:** When using a tape with 30-minute recording time or less.
- **EC-45:** When using a tape with 45-minute recording time.

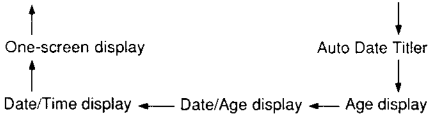
Notes:

- The indication will start blinking when the remaining tape time reaches 2 minutes.
- The indicated remaining time is approximate.
- The time required to calculate the remaining tape length and accuracy of the calculation may vary according to the type of tape used.
- "TAPE END" appears when the tape reaches its end. "TAPE END" also appears when a cassette is loaded whose tape is already at its end.

RECORDING OPERATION (Cont'd)



Viewfinder display



Date/Time/Age recording indications

Date display	AUTO DATE record mode	
25.12.92	AUTO DATE Auto date record mode	25.12.92 Auto date record executed
Auto date titler	**Age display**	**Date/Age display**
25.12.1992	6Y11M	25.12.92 6Y11M
Date/Time display		
25.12.92 23:35		

DATE/TIME/AGE RECORDING

The date/time/age can be displayed and recorded according to the selected mode.

Press MODE to cycle through the modes in the left order:

- The selected display mode will be recorded when it is displayed on the viewfinder screen; when it is not displayed, no display recording takes place. Pressing DISPLAY turns it ON and OFF.

Auto Date-Record function

This function allows the date (day, month and year) to be automatically recorded for about 5 seconds following the first operation of the Recording Start/Stop button:

= after changing the date.
= after a cassette is loaded, or
= after "AUTO DATE" mode is selected by MODE.

- The viewfinder indication shows the date during initial 5 seconds, then changes to "AUTO DATE".
- The auto date record reserve indication will disappear if DISPLAY is set to off. Reapplying power will bring back the indication.

Auto Date Titler

When set to this mode, the date (day/month/year) will be displayed in large characters in the centre of the viewfinder screen. The date is recorded for 5 seconds at the beginning of each recording in the following situations:

= after changing the date,
= after a cassette is loaded, or
= after the Auto Date Titler mode is selected by pressing MODE.

- The date of Auto Date Titler will not be recorded if DISPLAY is pressed before starting recording, regardless of the above situations.
- The date of Auto Date Titler can be recorded for 5 seconds anytime by pressing DISPLAY during shooting, even if it was recorded or not displayed at the beginning of the recording.

Note:

The date of Auto Date Titler can be recorded repeatedly during shooting, but it cannot be inserted more than 5 seconds at a time.

ASSEMBLE RECORDING TECHNIQUES

To replace the battery pack during recording:

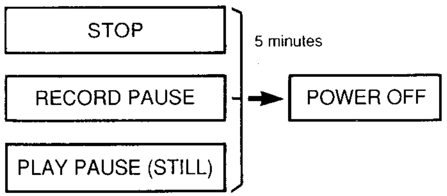
1. If the low-battery warning (▭) blinks in the viewfinder while recording, stop recording and slide POWER to turn off.
2. Replace the battery pack with a charged one.
3. Slide POWER to turn power on.
   — The unit will be in the Record-Standby mode.
4. Press the Recording Start/Stop button.
   — Recording starts.

To record onto a partially recorded tape:

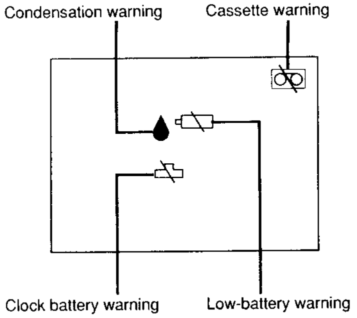
1. Set PLAY/CAMER to "PLAY" and press PLAY to playback the tape to a point where you wish a new recording to start.
   - Use REW or FF for faster location.
2. Press PAUSE at the located point.
   — The unit will enter the Still mode.
3. Set PLAY/CAMERA to "CAMERA".
4. Press the Recording Start/Stop button.
   — Recording starts.

POWER SAVE AND TAPE PROTECTION CIRCUIT

- To save power, the VideoMovie switches itself off automatically in the following situations:
  (1) When left for longer than 5 minutes in the Stop mode.
  (2) When left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- To protect the tape, the VideoMovie (regardless of whether battery-operated or AC-powered) releases tape tension slightly and switches itself off automatically if left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- For the same reason, the VideoMovie enters the Stop mode if left for longer than 5 minutes in the Still (Play-Pause) mode.



WARNINGS



LOW BATTERY WARNING (▭)

When the battery power is coming to an end, a battery warning indication appears in the viewfinder. After indication appears, the power turns off automatically. Replace the battery pack with a fully charged one.

CLOCK BATTERY WARNING (⌁)

Blinks when the lithium battery is not in place or exhausted. In this condition, no date/time function is available.

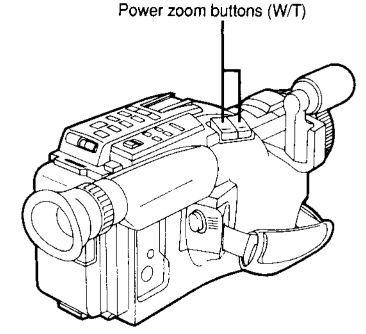
CONDENSATION WARNING (💧)

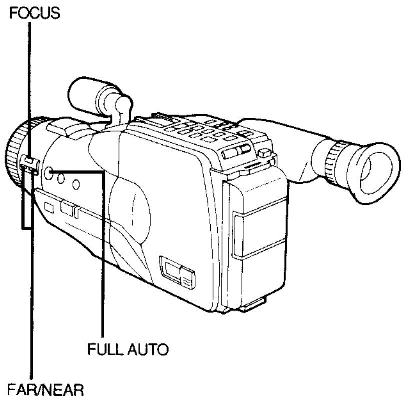
Appears when the excessive moisture condensation occurs inside the unit.

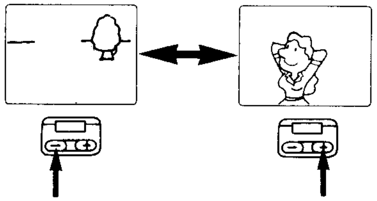
CASSETTE WARNING (⊘)

Blinks to warn that no cassette or a cassette without safety tab is loaded.

ADVANCED VIDEOGRAPHY TECHNIQUES







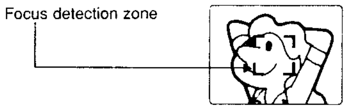
Note:

If the lens is smeared with stains or blurred with condensation, accurate focusing is not possible. Keep them clean. If they become dirty, wipe with a piece of soft cloth. When condensation occurs, dry them by wiping with a soft cloth or wait for conditions in which they become dry.

FOCUSING

Auto-focus

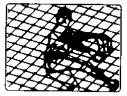
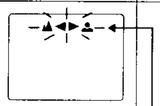
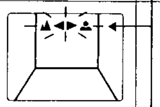
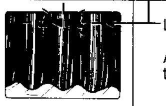
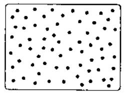
The rectangular focus area, shown by the indicators in the centre of the viewfinder, detects focus.



CAUTION

When not in use, do not leave the VideoMovie in the Auto Focus mode with power on; otherwise light entering the lens will operate the auto-focus mechanism, consuming power.

- Correct focus may not be obtained in the following situations. In such case manual focusing should be performed to obtain proper focus.

	Two subjects at different distances overlap in the same scene.
	Low illumination.
	The subject has no contrast (differences in brightness and darkness), such as a flat, one-colour wall, or a clear, blue sky, for instance.
	Low-contrast warning A dark object is barely visible in the viewfinder
	Minute patterns or identical patterns that are regularly repeated.

Manual focus

For manual focus operation, proceed as follows:

1. Press FOCUS to release the Auto Focus mode.
   — The Manual Focus indicators (▲♟) appear and the focus detection zone disappears.
2. Zoom in on a subject by pressing "T".
3. Focus onto it by pressing either FAR or NEAR.
   - Press FAR.
     The ◀ indicator blinks. It will disappear when the button is released.
   - Press NEAR.
     The ▶ indicator blinks. It will disappear when the button is released.
   - When the focus level cannot be adjusted any farther or closer, the indicator (▲) or the indicator (♟) will blink.
4. Determine the composition by pressing "W".

- **To release the Manual Focus mode** (to engage the Auto Focus mode):
  Press FOCUS, or FULL AUTO.
  — Manual focus indicators (▲♟) disappear and the focus detection zone appears.

Notes:

- When you use the Manual Focus mode, be sure to focus the lens in the maximum telephoto position. If you focus in on a certain subject in the wide-angle position, sharply-focused images cannot be obtained when zoomed up because the depth-of-field is reduced at longer focal lengths.
- When focusing manually, make neccessary viewfinder adjustments (☞ p. 7), then focus in.

CLOSE-UP — Macro shot

The VideoMovie's Full Range AF system can offer continuous shooting ability from close-up to infinity.

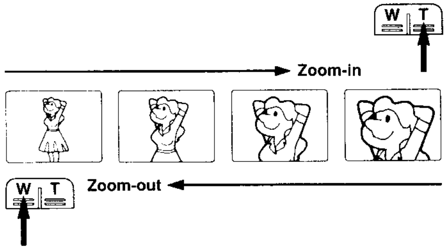
Procedure for Macro shooting

1. Press "W" until the lens zooms out completely.
2. Position the subject in the focus detection zone.

- For best results, increase illumination when shooting in the Macro mode.

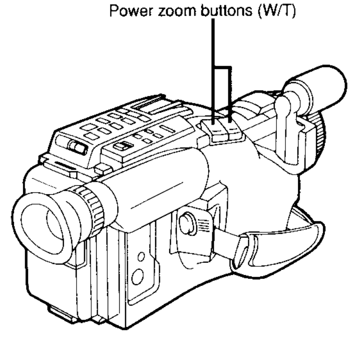
ZOOMING

Pressing the power zoom buttons ("T" and "W") will vary the focal length of the lens.



Procedure

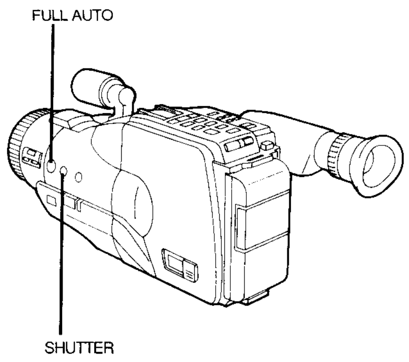
- Pressing T : Zoom in on the image (bring it nearer).
- Pressing W : Zoom out.

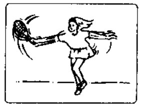


Notes:

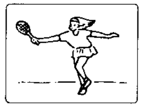
- Focusing may become unstable during the zooming-in operation. In this case, first zoom in in the Recording Standby mode then, after using the manual focusing to hold the focus fixed, zoom in or out in the Record mode.
- When shooting low-contrast subjects in the Zoom-in mode, the Videomovie automatically zooms out with the low contrast indicator blinking and focus being performed.

ADVANCED VIDEOGRAPHY TECHNIQUES (Cont'd)





Auto mode



High-Speed Shutter mode

MULTIPLE-SPEED ELECTRONIC SHUTTER

The VideoMovie is equipped with a selectable high-speed shutter that allows better recording of quick movements for sharp, clear stills or slow-motion playback.
Select it when taping fast-action shots that you will want to play back later on a VCR equipped with the Still or Slow-motion mode.

1. Press SHUTTER to switch to the desired electronic shutter speed while the Recording or in any other mode.
   — Continues at the selected speed until switched to another speed.
2. Select the shutter speed by pressing SHUTTER.
   — The shutter speed changes in the following order:

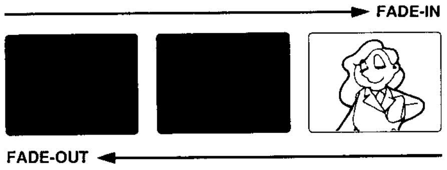
Auto (No indication) → S50 (1/50) → S60 (1/60)
↓
S125 (1/125)
↓
S250 (1/250) → S500 (1/500) → S1000 (1/1000)
↓
S4000 (1/4000)
↓
Auto (No indication)

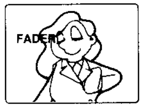
- When selected, the High-Speed Shutter mode is indicated on the viewfinder screen.
- In the Auto mode, usually the shutter speed is set to 1/50 sec., but changes to 1/60 sec. whenever flickering caused by light sources such as fluorescent lamp is detected.

3. When finished recording the fast-action scene, switch back to the Auto mode by pressing SHUTTER until the shutter mode indicator in the viewfinder disappears.

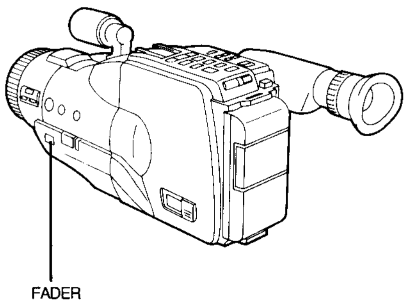
Notes:

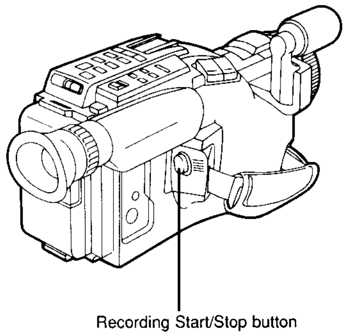
- The High-Speed Shutter mode requires slightly more subject illumination than the Auto mode. If so, switch to the Auto mode.
- Picture colour may be adversely affected in the High-Speed Shutter mode when the subject is lit by alternating discharge-type light sources such as fluorescent or mercury-vapour lights.
- When playing back a section recorded in the High-Speed Shutter mode, movement of subjects in the picture may not be smooth. This is not due to any defect of the unit.
- Pressing FULL AUTO also restores the shutter speed to the Auto mode.





Viewfinder





FADER

This VideoMovie incorporates a fader function which allows smooth video fade-in and fade-out with a black blank screen.

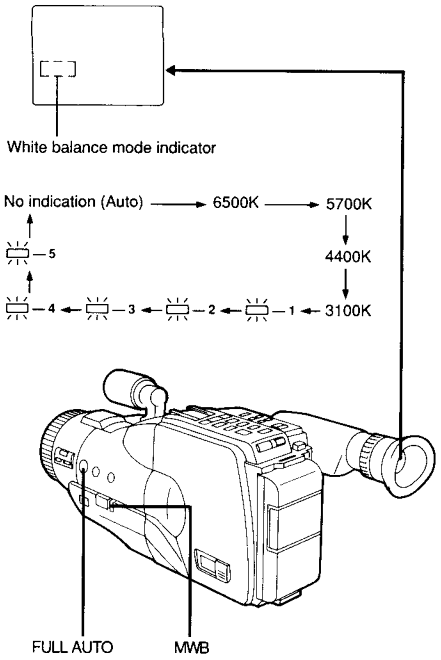
Fade-in

1. Press FADER.
   — The VideoMovie enters into the Fade-Standby mode and "FADER" appears.
2. Press the Recording Start/Stop button.
   — The screen immediately becomes blank and recording begins. Fade-in starts at the moment the Recording Start/Stop button released.
   - If the button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.

Fade-out

1. Press FADER in the Recording mode.
   — The VideoMovie enters into the Fade-Standby mode and "FADER" appears.
2. Press the Recording Start/Stop button.
   — The viewfinder indications start blinking. Fade-out starts and will be completed in a few seconds.
   - When completed, the VideoMovie enters in the Record-Standby mode automatically. At this time, if the button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.

Note:
Viewfinder indication "FADER" is not recorded.


White balance mode indicator
No indication (Auto) → 6500K → 5700K → 4400K → 3100K → ☼-1 → ☼-2 → ☼-3 → ☼-4 → ☼-5 → No indication (Auto)
FULL AUTO
MWB

INDICATIONS	SITUATIONS
6500K	Cloudy day (To make the recorded pictures less bluish.)
5700K	Sunny day (To make the recorded pictures slightly less bluish.)
4400K	Evening glow (To make the recorded pictures less reddish.)
3100K	Halogen lamp (When using the video light.)
☼—1	Under warm white fluorescent lights (Regular-type lighting: on railway platforms, in Dept.stores, etc.)
☼—2	Under bulb-lamp-colour fluorescent lights (High-grade-type lighting: In electric goods stores, etc.)
☼—3	Under cool white fluorescent lights (Regular-type lighting: In offices, etc.)
☼—4	Under high-grade fluorescent lights (High colour temperature-type lighting: nearly day light)
☼—5	Under highest-grade fluorescent lights (Higher colour temperature-type lighting: almost day light)

WHITE BALANCE ADJUSTMENT

This VideoMovie's Automatic Colour Temperature system senses the colour temperature of the ambient lighting for automatic white balance adjustment. However, precise colour temperature adjustment is not possible under the following conditions:

- The light falling on the object being shot and the light around the VideoMovie are of different colour temperatures.
- Either the object or the VideoMovie is in an area covered by a shadow.

In these cases, use the VideoMovie's built-in filters for white balance adjustment.

To adjust the white balance:

Press MWB (Manual White Balance) so that the required indication appears in the viewfinder.

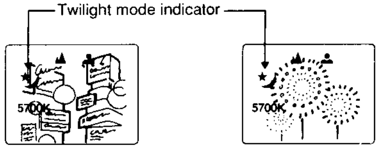
- More creative pictures can be recorded if white balance adjustment is set to positions different from the one matching the actual situation.
  (For example: Recordings on a sunny day can be made that have a strong bluish tint if the white balance is set to 4400K, since this reduces the reddish colors.)

To switch the automatic adjustment:

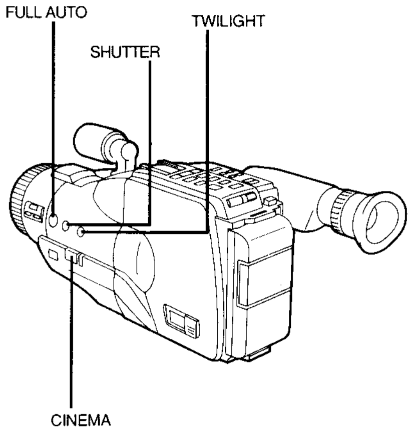
Press MWB until the indication disappears, or press FULL AUTO.

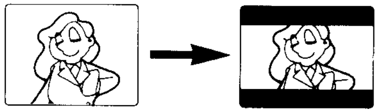
Useful tip:

It is helpful to connect your VideoMovie to a colour monitor when adjusting the white balance.



Neon sign Fire works





Cinema mode

TWILIGHT MODE

To record scenes of low illumination with more natural-looking results, switch to the Twilight mode. This mode is effective when shooting scenes with fireworks, neon signs, and other distant views.

To engage the Twilight mode:

Press TWILIGHT.
— The Twilight mode indicator (☽) appears in the viewfinder.
— The white balance level switches to 5700K.
— The Focus mode switches to manual, and is automatically set to infinity.
— The shutter speed switches to the Auto mode.

- The white balance level can be adjusted with MWB (☞ P.17). The focal length can be adjusted with Manual Focusing (☞ P.14). The shutter speed can be adjusted with SHUTTER (☞ P.15).
  However, once the unit is turned off, the manually adjusted focal length is canceled and automatically reset to infinity.
- If FOCUS is pressed, the unit enters the Auto Focus mode.

To release the Twilight mode:

Press TWILIGHT again, or press FULL AUTO.
— The Twilight mode is released, and White balance, Focus and Shutter speed are switched to Auto.

CINEMA MODE RECORDING

This VideoMovie incorporates a "Cinema" mode recording function which allows you to record black bars at the top and bottom of the screen to produce cinema-like "wide-screen" effects.

To engage the Cinema mode:

Press CINEMA.

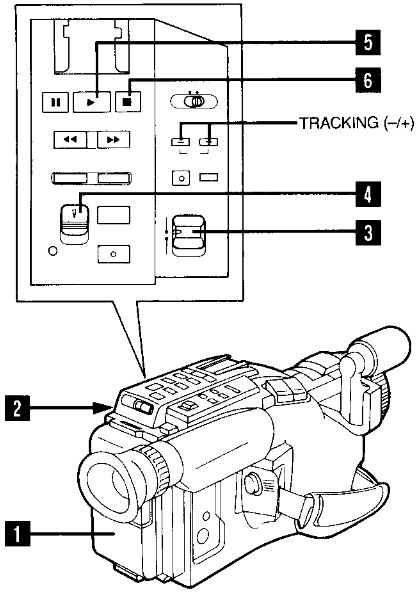
To restore the normal screen:

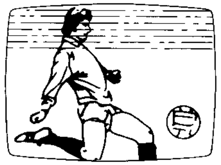
Press CINEMA again.

Note:

The Cinema mode can be engaged only in the Record-Pause, Record or Rehearsal mode.

PLAYBACK





The VideoMovie permits playback of recorded "VHS-C" video cassettes.
For connections refer to pages 21 and 22.

PLAYBACK OPERATION

1. Preparations

1 Supply power. (Battery or AC operation: ☞ P.5 and 6)

2 Insert a pre-recorded VHS-C cassette.

- Ensure that tape is not slack inside the cassette, then load the cassette correctly. (☞ P. 7)

2. To playback a cassette

3 Set PLAY/CAMERA to "PLAY".

4 Slide POWER to turn power on.
— The power indicator lights.

5 Press PLAY.
— Playback starts and playback picture appears on the viewfinder screen and connected TV.

3. To stop playback

6 Press STOP.

- After about 5 minutes of Stop mode, the VideoMovie switches itself off automatically.

REWIND OR FAST-FORWARD THE TAPE

Rewind the tape:
Press REW less than about 2 seconds in the Stop mode.

Fast-forward the tape:
Press FF less than about 2 seconds in the Stop mode.

For high-speed REW or FF the tape:
Press REW or FF more than about 2 seconds and release it.
— The elapsed time counter changes to "-:--:--".

Note:
The elapsed time counter indication and counter memory function (☞P.20) are not functionning when using the high-speed REW or high-speed FF mode.

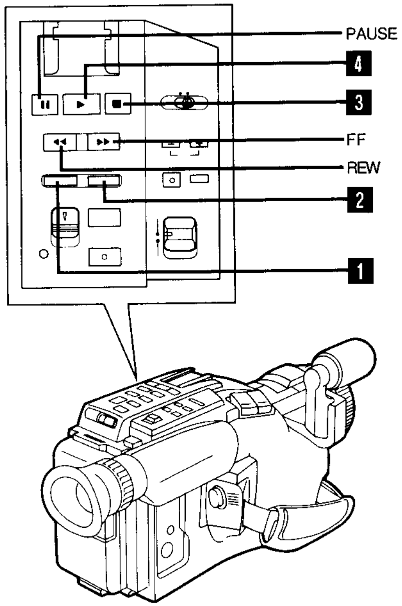
MANUAL TRACKING

If noise bars appear on the screen, the tracking needs to be adjusted.

1 Press either TRACKING to adjust to the best picture possible.

- When re-engaging the preset tracking standard, press both TRACKING (–/+) simultaneously.

Note:
For tapes recorded on another videocamera or VCR, tracking adjustment might not be effective.



STILL PLAYBACK

Press PAUSE during playback.
— The picture stops on the screen.

- After about 5 minutes of still playback, the VideoMovie enters the Stop mode automatically for tape protection and switches itself off.

SHUTTLE SEARCH

Fast-speed forward playback:
Press FF in the Play mode.
— Playback will be speeded up to 3 times normal speed.

Fast-speed reverse playback:
Press REW in the Play mode.
— The tape will be played back in the reverse direction at 3 times normal speed.

Notes:

- For brief fast-speed searching, keep FF or REW pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.
- Noise bars will appear and pictures may become monochrome while in Still Playback or Shuttle Search. This is not due to any defect of the unit.

COUNTER MEMORY FUNCTION

This VideoMovie incorporates a counter memory function which facilitates locating a specific tape segment.

1 Press C. RESET.
— Resets the counter to "0:00:00".

2 Press C. MEMORY. — "M" appears.

3 After recording or playback, press STOP, then REW.
— The tape will automatically stop at the counter reading of around "0:00:00".

4 Press PLAY. — Playback starts.

Notes:

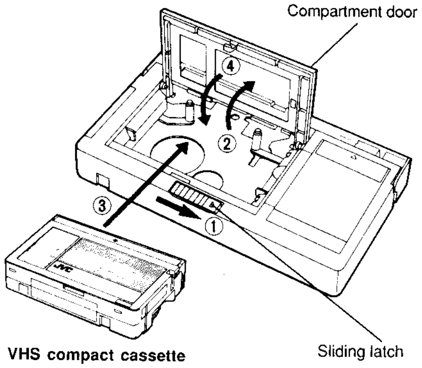
- The counter memory function is effective in the Fast Forward mode as well.
- To cancel the memory function, press C. MEMORY to disappear "M".
- When the power supply unit is disconnected, the counter memory function is instantly cancelled.
- The counter memory function is not effective when using the high-speed FF or high-speed REW (☞ P. 19).
- The counter memory function is not effective when the tape rewinds from the end: the VideoMovie automatically enters the high-speed REW mode, switching the counter indication to "-:--:--".

USING THE CASSETTE ADAPTER

By using the Cassette Adapter, a VHS-C video cassette recorded with this VideoMovie can be played back with any deck-type VHS video recorder. Also, a VHS-C video cassette installed in the cassette adapter is fully compatible for both recording and playback on any deck-type VHS video recorder.

Note:
Only compact video cassette tapes marked VHS C can be used with the Cassette Adapter.

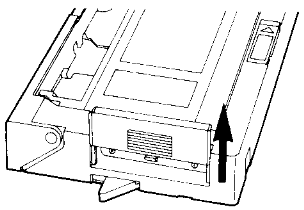
C-P6U Cassette Adapter
Being battery-operated, the C-P6U performs tape loading and unloading automatically.



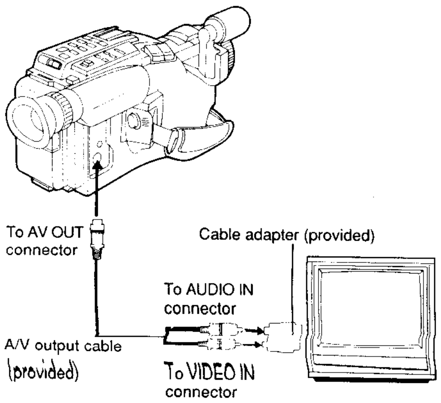
Note:
During special-effects playback (slow motion, still frame, etc.) the picture may vibrate or noise bars may appear on the screen.

Inserting the battery into the cassette adapter

1. Remove the battery cover by sliding it up.
2. Install one "R6" battery.
3. Reattach the cover.



CONNECTIONS TO A TELEVISION FOR PLAYBACK



1 Connection to a television equipped with A/V input connector

For this situation, use the provided A/V output cable.

- Use the A/V output cable to simply connect the AV OUT connector of the VideoMovie to the AUDIO input and VIDEO input connectors of the TV.
- If your TV has the 21-pin AV input connector (SCART), use the provided cable adapter.

2 Connection to a television not equipped with A/V input connector

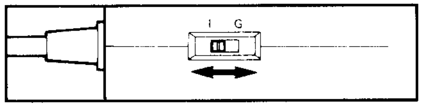
For this situation, use the optional RF unit.

1. Remove the aerial cable from the TV receiver.
2. Connect the aerial cable to the ANTENNA IN terminal of the RF unit.
3. Connect the RF OUT terminal of the RF unit to the aerial terminal of the TV receiver using the provided aerial cable.
4. Connect the VIDEO/AUDIO INPUT cable of the RF unit to the AV OUT connector of the VideoMovie.
5. Adjust the RF converter output channel according to your VIDEO CHANNEL.

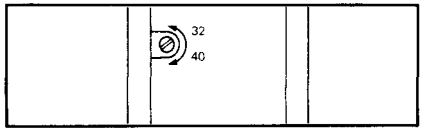
PRECAUTIONS FOR RF UNIT

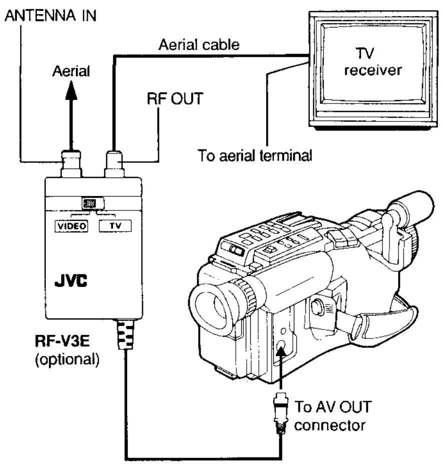
- For exclusive use with the VideoMovie.
- Do not disassemble or remodel the RF unit
- Do not expose it to strong shocks.
- Unplug the connected equipment during lightning storms. (Never touch the aerial cable.)

- **TV system select switch (I/G)**
  When you use a TV receiver built on the British PAL standard, shift the system select switch to "I".



- **RF converter channel adjustment screw**
  To make this adjustment, remove the small cap on the back of the RF unit and turn the adjustment screw with a screwdriver to tune in a vacant channel. The RF unit permits playback of video and audio recordings through a TV receiver. The signals from the RF unit are viewed through a vacant channel not used for broadcasting in your area. The output frequency of the RF converter has been set to correspond to a broadcast on UHF channel 36. To view playback pictures from the VideoMovie with your TV receiver, tune its specified AV channel to UHF channel 36. If channel 36 is employed for broadcasting in your area, readjust the RF converter output channel to one of the vacant channels between 32 and 40.





OPERATION

- **Viewing video cassettes being played back with the VideoMovie**
  To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF unit to VIDEO and the TV channel selector to the channel corresponding to the RF output channel.
- **Viewing television programmes**
  Set the VIDEO/TV switch to TV, and the TV receiver will function as usual.
- **RF converter channel adjusting procedure**

1. Set the AV channel of the TV receiver to one of the vacant channels.
2. Power the VideoMovie.
3. Put the VideoMovie in the Rehearsal mode (see page 10).
4. Set the VIDEO/TV switch of the RF unit to VIDEO.
5. While monitoring the output signal on the TV screen, turn the RF converter channel adjustment screw to that the monitored picture comes in most clearly.

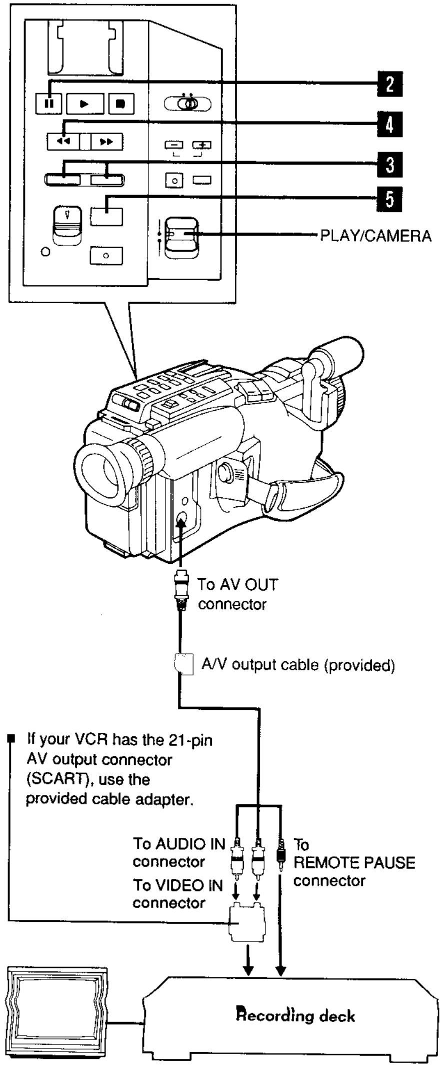
CAUTION:
To view the VideoMovie recordings with a TV receiver, use a TV receiver having a specified AV channel and employ this AV channel as your VIDEO CHANNEL, otherwise playback may be disturbed with vibrating or bending pictures. AV channels refer to channels exclusively for video playback; because AFC circuits are applied to these channels, the playback pictures can be stabilised. Recent TV receivers have one or more AV channels.

EDITING TECHNIQUES

MASTER EDIT CONTROL SYSTEM (Assemble Editing)

(When using a JVC VCR equipped with a Remote Pause terminal)

This feature functions only when using a designated JVC VCR equipped with a Remote Pause terminal. The Master Edit Control system enables control of the VCR via the VideoMovie's controls, for quality preroll editing without transition-point gaps and distortion.


2
4
3
5
PLAY/CAMERA
To AV OUT connector
A/V output cable (provided)
To AUDIO IN connector
To VIDEO IN connector
To REMOTE PAUSE connector
Recording deck

- If your VCR has the 21-pin AV output connector (SCART), use the provided cable adapter.

Preparation

- Connect the VideoMovie and the recording deck as in the diagram on the left.
- Turn on both the VideoMovie and the recording deck.
- Correctly insert the appropriate cassettes into the VideoMovie and the recording deck.
- Set PLAY/CAMERA to "PLAY".

1 Engage the recording deck's AUX mode and Record-Pause mode.
— The tape in the deck winds backward for 1.3 seconds.

2 Engage the VideoMovie's Play mode to locate the edit-out point on the tape. When this point is reached, press PAUSE.

3 Press C. RESET, then C. MEMORY.
— "M 0:00:00" appears.

4 Press REW to locate the edit-in point. When it is reached, engage the Still mode.

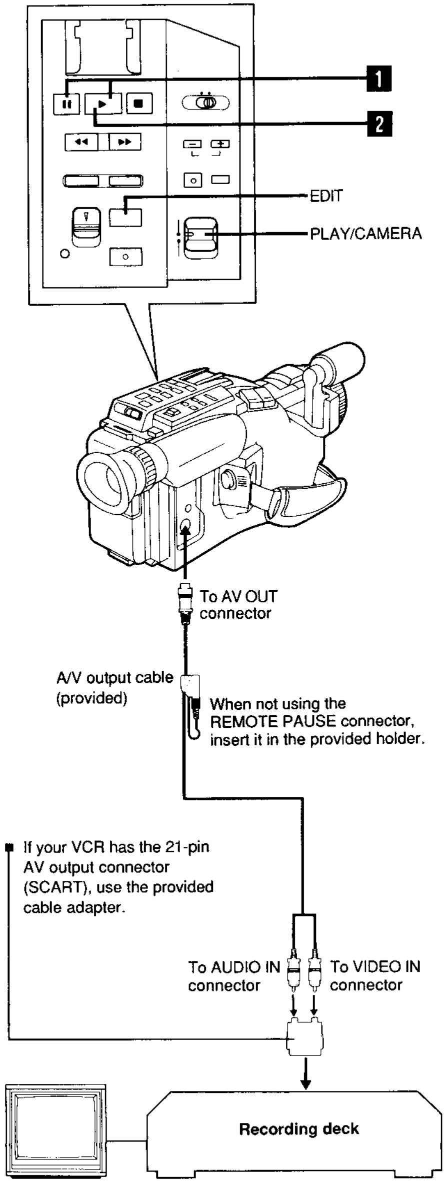
5 Press EDIT to start editing.

- The VideoMovie and the recording deck carry out the following procedure automatically.
  1) The VideoMovie prerolls the tape for 5 seconds then starts playback to stabilize the tape run.
  2) After the VideoMovie has played back for 3.7 seconds, it sends a command signal to the recording deck. The deck then starts playback together with the VideoMovie for 1.3 seconds.
  3) When the VideoMovie's tape reaches the edit-in point, the deck starts recording in synchronization with it.

6 When the VideoMovie's tape reaches the edit-out point (counter reading of "0:00:00"), the VideoMovie enters the Still mode and the recording deck enters in the Record-Pause mode automatically.

- Repeat these steps as required.
- When the tape reaches the preset edit-out point during the dubbing operation, it may stop slightly before or after the designated point on the tape.

Note:
There are some VCRs which are not compatible with the Master Edit Control system.


1
2
EDIT
PLAY/CAMERA
To AV OUT connector
A/V output cable (provided)
When not using the REMOTE PAUSE connector, insert it in the provided holder.
To AUDIO IN connector
To VIDEO IN connector
Recording deck

- If your VCR has the 21-pin AV output connector (SCART), use the provided cable adapter.

TAPE DUBBING

(Dubbing to a second recorder)

In order to perform simple dubbing of an entire tape, proceed as follows.

Preparations

- Make connections according to the diagram on the left.
- Turn on all components' power.
- Correctly insert the appropriate cassettes.
- Set PLAY/CAMERA to "PLAY".

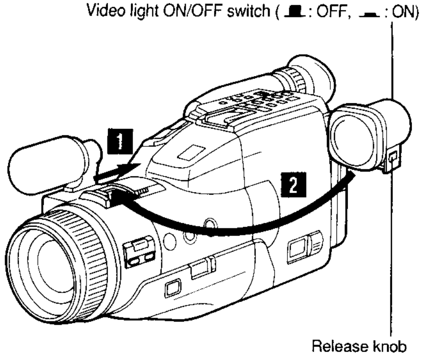
1 Engage the connected recorder's AUX mode and Record-Pause mode, and press the VideoMovie's PLAY and PAUSE together to engage its Pause mode.

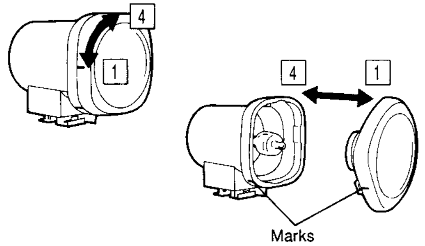
2 Press the VideoMovie's PLAY and engage the connected recorder's Recording mode to start dubbing.
— The VideoMovie starts playback; the recorder starts recording.

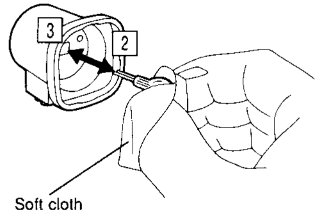
3 To edit out unwanted material, engage the recorder's Record-Pause mode.

- If using with a JVC VCR equipped with a Remote Pause terminal, perform as follows:
  1) Make connections according to the diagram on the page 23.
  2) Engage the connected recorder's AUX mode and Record-Pause mode.
  3) Press EDIT of the VideoMovie. The deck's recording begins in synchronization with the VideoMovie's playback start.

USING ACCESSORIES







Notes:
- The video light unit and the bulb are very hot immediately after the power is turned off. Bulb replacement should be performed after it has cooled. (It will approx. 30 minutes to cool sufficiently.)
- Do not touch the bulb directly. If it becomes dirty, smoke or reduced service life may result. When accidentally touched by fingers directly, wipe it with a soft cloth.
- Give the part number YQ31040-001 when ordering a video light bulb.
- Use an exclusive halogen bulb which is available at your nearest JVC dealer.

LIGHTING

Attaching the video light VL-V4EG (optional)

1 Slide the light shoe cover in the direction of the arrow until it clicks in place.

2 Insert the video light into the video light mounting shoe.

To remove the video light:

Slide the video light in the opposite direction of the arrow while pressing the release knob.

To apply more light to the scene

Press the video light switch to turn on the video light.
- It is recommended to the white balance level set to 3100K (☞ P.17) when you use the video light.
- When not using the video light attached to the VideoMovie, turn off the video light to save battery power.
- The video light can be used with the VideoMovie's PLAY/CAMERA set to "CAMERA".

CAUTIONS:
- Use only the optional video light VL-V4EG with this mounting shoe. Do not attach any other video lights.
- The video light becomes extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- When replacing the bulb after using the video light, make sure to wait for it to cool off.
- Do not place the video light into the carrying case immediately after using it, since it remains extremely hot.
- When operating, keep a distance of about 30 cm between the video light and people or object.
- Do not use near flammable or explosive materials.

Replacing the video light bulb

It is recommended to consult your nearest JVC dealer for replacing the bulb. However, if you do it yourself, proceed as follows:

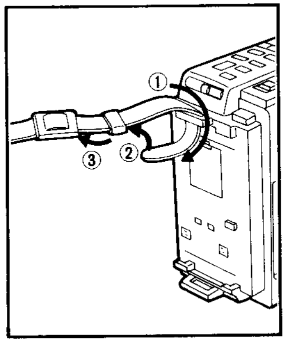
[1] Turn the video light cover counterclockwise to remove it.

[2] Pull the bulb toward you.

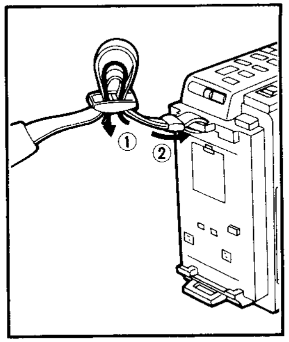
[3] Insert a new bulb. As this time, it is important to hold the bulb using a soft cloth. Do not touch the bulb directly.

[4] Align marks and replace the cover.

ATTACHING THE SHOULDER STRAP (optional)

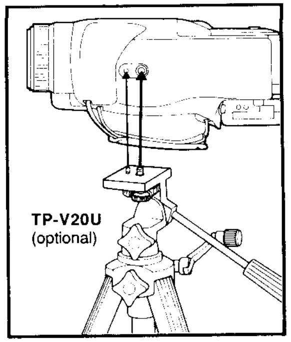


1 Loop the end of the strap over the top of the eyelet ①, then, folding it back, thread the end of the strap first through the keeper ②, then the buckle ③. Making sure that the strap is not twisted, repeat the above procedure to attach the other end of the strap to the other eyelet.



2 Adjust the shoulder strap to the desired length ①, then slide both keepers up snug against the eyelets to prevent the strap from slipping ②.

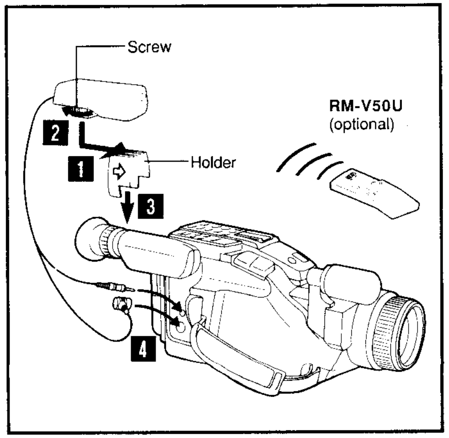
TRIPOD MOUNTING



Align the screw and camera direction stud of the tripod with the camera's tripod mounting socket and stud hole, and firmly tighten the screw.

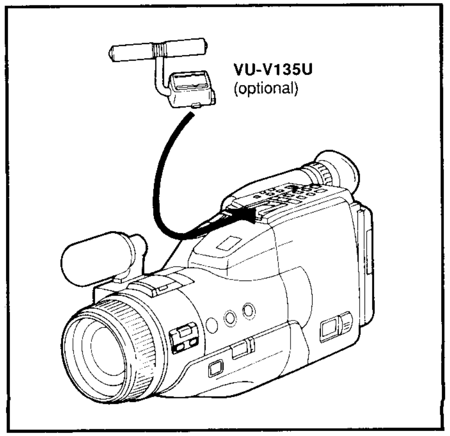
WIRELESS REMOTE CONTROL KIT

- Attaching the receiver.
  Connect the Remote plug to the REMOTE jack and AV plug to the AV OUT connector.



CARRYING HANDLE

- Attaching the carrying handle VU-V135U. (optional)



USING THE REMOTE CONTROL UNIT RM-V50U/ RM-V20U (optional)

The RM-V50U and RM-V20U permit VCR functions to be controlled from a distance.
*Before use, refer to the instruction booklets.

Installing the batteries

1. Slide the battery compartment cover on the rear of the unit.
2. Insert 2 R03 (AAA)-size" batteries in the correct directions into the battery compartment.
3. Replace the cover.

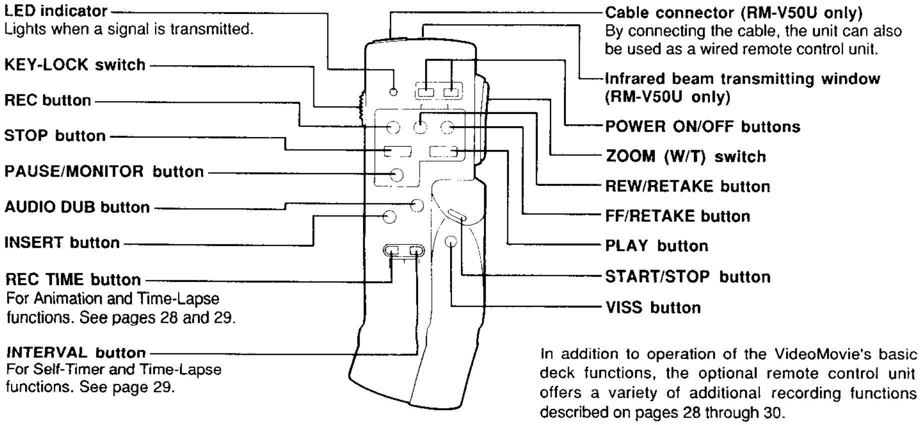
Precautions

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

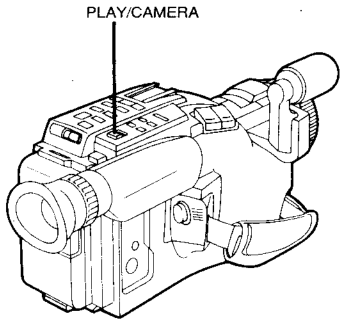
- Functions of the remote control unit's control buttons vary depending on the VideoMovie's PLAY/CAMERA position.

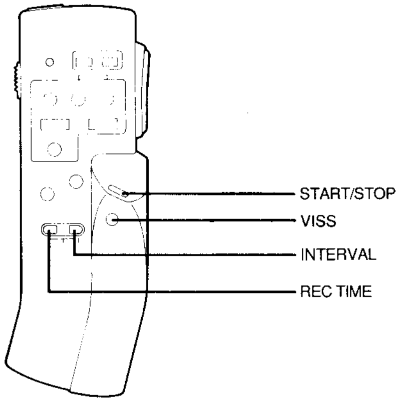
Buttons	Functions	
	With the VideoMovie's PLAY/CAMERA set to "CAMERA".	With the VideoMovie's PLAY/CAMERA set to "PLAY".
POWER ON	Power on (Does not function when using the Receiver.)	
POWER OFF	Power off	Power off
REC	—	—
START/STOP	Functions same as the Recording Start/Stop button of a VideoMovie.	
REW/RETAKE	Retake (Rewind)	Rew/Rew Shuttle Search
FF/RETAKE	Retake (Forward)	FF/FF Shuttle Search
REC TIME	Animation/Time-Lapse	—
INTERVAL	Self-Timer/Time-Lapse	—
VISS	Index Code Marking	—
PLAY	—	Playback Start
PAUSE/MONITOR	—	Pause
STOP	—	Stop
INSERT	—	Insert Editing
AUDIO DUB	—	Audio Dubbing

- The optional RM-V50U remote control unit can operate the VideoMovie from a distance of up to 5 m.
- The transmitted beam may not be effective when the Beam receiver is directly exposed to sunlight. In such a case, use the transmitter as a wired remote control unit.


LED indicator
Lights when a signal is transmitted.
KEY-LOCK switch
REC button
STOP button
PAUSE/MONITOR button
AUDIO DUB button
INSERT button
REC TIME button
For Animation and Time-Lapse functions. See pages 28 and 29.
INTERVAL button
For Self-Timer and Time-Lapse functions. See page 29.
Cable connector (RM-V50U only)
By connecting the cable, the unit can also be used as a wired remote control unit.
Infrared beam transmitting window (RM-V50U only)
POWER ON/OFF buttons
ZOOM (W/T) switch
REW/RETAKE button
FF/RETAKE button
PLAY button
START/STOP button
VISS button

In addition to operation of the VideoMovie's basic deck functions, the optional remote control unit offers a variety of additional recording functions described on pages 28 through 30.


PLAY/CAMERA


START/STOP
VISS
INTERVAL
REC TIME

1 INDEX CODE MARKING

The VHS Index Search System (VISS) gives you automatic access to any point you select on a recording. Only the marking aspect of the Index Search System is included in this unit. It allows index codes to be placed on recorded tape for convenient dubbing or editing on VCRs with an Index Search function.

1 Press VISS once to put an index code onto the tape.
— "INDEX" blinks during the marking process.

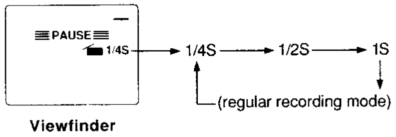
- When "INDEX" appears, no VideoMovie functions can be executed.
- If VISS has been pressed in the Record-Pause mode, an index code is put at the point where START/STOP is pressed.

2 ANIMATION

The Animation function produces the illusion of movement in otherwise stationary scenes or objects. This technique is accomplished by shooting a series of slightly different pictures of the same scene or slightly different poses of the same object for a brief period of time.

1 Put the VideoMovie in the Record-Pause mode.

2 Press REC TIME to select the recording time.
— The following sequence of time setting is displayed with each press of REC TIME:


PAUSE
1/4S
1/4S
1/2S
1S
(regular recording mode)
Viewfinder

3 Press START/STOP after focusing on the subject.
- Recording stops automatically in the Record-Pause mode after the selected period of time.

4 Repeat steps 2 - 3 for the required number of pictures.

5 Playback the recorded series to check if results were satisfactory.

To release the Animation mode:
Press REC TIME until "▬" in the viewfinder disappears, or set PLAY/CAMERA to "PLAY".
- The Animation mode can only be engaged from the Record-Pause mode.

Notes:

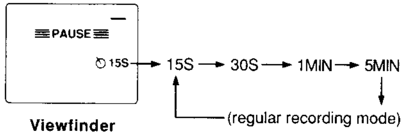
- Keep the VideoMovie steady in one position when filming the series of shots for best results. Mounting the VideoMovie on a tripod is recommended.
- Before recording in the Animation mode at the very beginning of a tape, set the VideoMovie to the Recording mode for about 5 seconds, so that the tape runs smoothly. Using the Fade-in function at this point is a good way to begin an animated programme.
- Fade-in/out is not possible while the Animation or Time-Lapse shooting.
- When shooting in the Animation mode, the elapsed time counter reading may be incorrect. This is not due to any defect of the unit.

USING THE REMOTE CONTROL UNIT RM-V50U/ RM-V20U (optional) (Cont'd)

3 SELF-TIMER

The Self-Timer function allows you to set the amount of time delay before recording starts after START/STOP has been pressed. If the VideoMovie has been secured, the operator can enter the picture before actual recording begins.

1. Put the VideoMovie into the Record-Pause mode.
2. Press INTERVAL to select the interval time.
   — The following sequence of time setting is displayed with each press of INTERVAL:



3. Press START/STOP.
   - When the selected time has elapsed, recording begins automatically.

To release the Self-Timer mode:

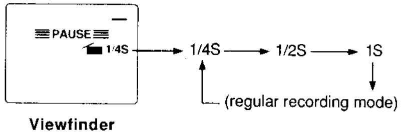
When "–" is not blinking:
Press INTERVAL continuously until " ⏲ " goes off.
When "–" is blinking:
Press START/STOP to stop the blinking, then press INTERVAL continuously until " ⏲ " goes off.

- Turning the power off and on once engages the regular Record-Pause mode.

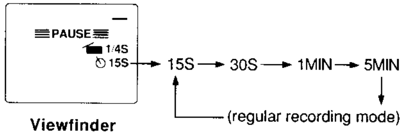
4 TIME-LAPSE

The Time-Lapse function allows automatic sequential on/off recording at preset time spans. With the VideoMovie continuously focused on a specific scene or object, the resulting recording will show subtle changes (such as shifts in cloud formations, plant growth etc.) over an extended period of time.

1. Put the VideoMovie into the Record-Pause mode.
2. Press REC TIME to select the recording time.
   — The following sequence of time settings is displayed with each press of REC TIME:



3. Press INTERVAL to select the interval time.
   — The following sequence of time settings is displayed with each press of INTERVAL:



4. Press START/STOP to start the Time-Lapse recording. The selected recording time and interval will alternate automatically.

To release the Time-Lapse mode:

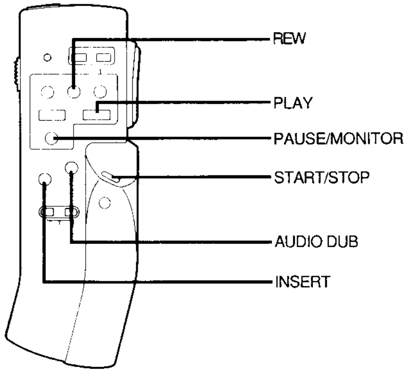
When "–" is not blinking:
Press INTERVAL and REC TIME continuously until " ▬ " and " ⏲ " go off.
When "–" is blinking:
Press START/STOP to stop the blinking, then press the INTERVAL and REC TIME continuously until " ▬ " and " ⏲ " go off.

- Sliding the power switch to "LOCK" or "PLAY" also releases the mode.

Note:
When shooting in the Time-Lapse mode, the elapsed time counter reading may be incorrect. This is not due to any defect of the unit.

5 INSERT EDITING

Insert editing means recording a new scene into a section of prerecorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at the edit-in and edit-out points. In the Insert Editing mode, the original audio on the audio track remains unchanged.



1. Set PLAY/CAMERA to "PLAY".
2. Locate the desired edit-out point on the tape and press PAUSE/MONITOR.
3. Press C. RESET, then C. MEMORY to obtain the "M" indication in the viewfinder.
4. Press REW to rewind the tape a little beyond the beginning of the scene you wish to insert.
5. Press PAUSE/MONITOR exactly at the beginning of the scene to insert.
6. While holding INSERT pressed, press PAUSE/MONITOR.
   — The VideoMovie enters the Insert Editing mode with the scene at which the VideoMovie is aimed appearing on the screen for monitoring.
7. Press START/STOP to insert the new sequence.

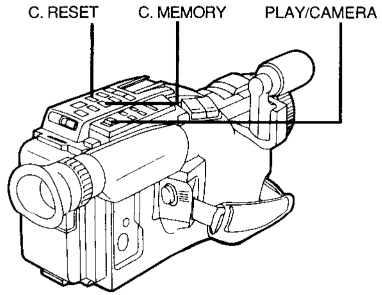
- When the counter reading of "0:00:00" is reached, insert editing stops automatically and the VideoMovie enters the Playback mode.

Notes:
- When in the Still mode, the counter indication may be blurred. This is normal.
- When the tape reaches the preset edit-out point during the editing operation, it may stop slightly before or after the designated point on the tape. Also, at that time, noise bars may appear momentarily. Neither of these is a defect of the unit.
- Only video signals are recorded in the Insert Editing mode. When the sound is to be recorded, press the AUDIO DUB and PAUSE/MONITOR simultaneously in the Insert Pause mode. When INSERT and PAUSE/MONITOR are pressed simultaneously again, the unit re-enters the Video-signal-only Recording mode.

6 AUDIO DUBBING

Audio dubbing means recording a new soundtrack on a pre-recorded tape, i.e., replacing the original sound with new audio material.

Precautions
- Tapes with their safety tabs removed cannot be audio dubbed. Reseal the safety tab slot to perform the dubbing.
- If whistling or howling is heard during audio dubbing, reduce the TV volume or move the mike farther away from the TV.



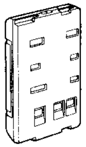
1. Set PLAY/CAMERA to "PLAY".
2. Locate the desired edit-out point on the tape and press PAUSE/MONITOR.
3. Press C. RESET, then C. MEMORY to obtain the "M" indication in the viewfinder.
4. Press REW to locate more quickly the place on the tape you want to begin.
5. Press PAUSE/MONITOR at the exact beginning point.
6. While pressing AUDIO DUB, press PAUSE/MONITOR to enter the Audio Dub Standby mode.
7. Press PLAY. — Audio dubbing begins.

- When the counter reading of "0:00:00" is reached, audio dubbing stops automatically and the VideoMovie enters the Playback mode.

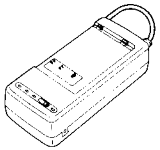
SYSTEMS FLEXIBILITY

For maximum enjoyment, make the most of the provided or optional accessories depending on the situation.

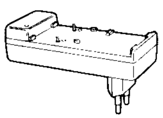
- **Battery pack**
  BN-V14U
  BN-V22U
  BN-V50U
  BN-V60U



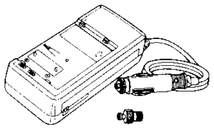
- **AC power adapter/battery charger AA-V10EG**
  Charges battery pack or powers the VideoMovie via household AC current. (Can be used with 110 V to 240 V.)



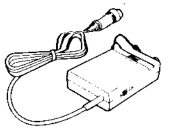
- **Battery charger BH-VC10EG**
  Charges battery pack via household AC current. (Can be used with 110 V to 240 V.)



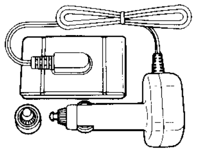
- **Car battery charger BH-V3E**
  Charges battery pack or powers the VideoMovie via a car battery. (Use with 12 V or 24 V negative grounded cars only.)



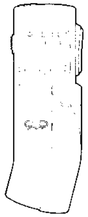
- **RF unit RF-V3E**
  Use to connect the VideoMovie to a regular television for playback.



- **Car battery cord AP-V6E/V7E**
  Power the VideoMovie via a car battery. (Use with 12 V negative grounded cars only.)

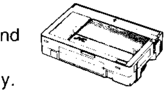


- **Remote control unit RM-V50U/RM-V20U**
  Controls VideoMovie's VCR functions from a distance.

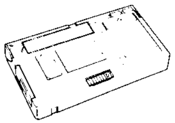


- **Shoulder strap VU-V220U**

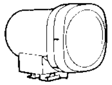
- **VHS-C cassettes EC-45/30**
  Allows 45/30 minutes of recording and playback respectively.



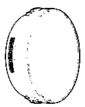
- **Cassette adapter C-P6U**
  Enables the VHS-C cassette to be used with regular VHS machines.



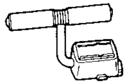
- **Video light VL-V4EG**



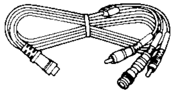
- **Conversion lens kit GL-V10U**
  Consists of telephoto (1.4x) and wide-angle (0.6x) conversion lenses.



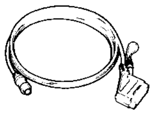
- **Carrying handle VU-V135U**
  Use to carry the VideoMovie.



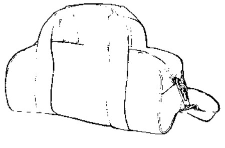
- **A/V output cable VC-V826E**
  Use to connect VideoMovie to a television equipped with audio/video input connectors for playback, or to a VCR for dubbing or editing.



- **A/V output cable VC-V8961SE**
  Use to connect the VideoMovie to a TV or VCR equipped with a 21-pin connector for monitoring or dubbing/editing.



- **Active carrying bag CB-V7U**



Some accessories are not available in some areas.

SUPPLEMENTAL INFORMATION

What is "colour temperature"?

Light is composed of various colour components in different proportions. A relationship exists between the temperature of a light source and the colour components of the emitted light; as the temperature rises, the colour of the light varies from red, orange, yellow, white to blue in that order. "Colour temperature" is a value that expresses differences in colour among light sources, measured in Kelvin degrees. Bluish light has a higher colour temperature than reddish light.

What is "white balance"?

Making the colours look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for colour temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colours correct. The VideoMovie can perform automatic white balance adjustment. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colours, therefore, sufficient illumination is essential.

What is "illuminance"?

"Illuminance" (also called "luminance") is the intensity or brightness of light, expressed in lux. The VideoMovie is designed to provide best pictures under the conditions of a 700-lux illuminance, although shooting is possible all the way down to 3 lux. To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on the right.)

How to get good colour pictures.

The simplest way is to provide sufficient lighting (close to the camera's reference illuminance) and accurately adjust the camera to the colour temperature of that lighting. If light sources of different colour temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colours of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same colour temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Colour temperatures of various artificial lighting

Type of illumination		Colour temperature
Tungsten lamp for home use		2800 K
Tungsten lamp for photographic use		3200 K
Quartz-halogen lamp		
Blue lamp for photographic use		5000 K
Fluorescent lamp	Warm white	▭–1
	Cool white	▭–3
	Daylight type	▭–4

Illuminance chart

- The values on this chart are approximated to give you a rough reference.

	Unit: Lux	
ND filter desired	100,000	■ Clear sky, mid-day, under sunlight 100,000
		■ Clear sky (10:00 a.m.) under sunlight 65,000
		■ Clear sky (3:00 p.m.) under sunlight 35,000
		■ Cloudy sky (mid-day) under sunlight 32,000
		■ Cloudy sky (10:00 a.m.) under sunlight 25,000
Range for practical use	10,000	
		■ By the window during the afternoon 3,500
	2,000	■ Cloudy sky (one hour after sunrise) 2,000
	1,000	■ Clear sky (one hour before sunset) 1,000
	600	■ Counters at department stores 500–700
	500	■ Bowling centre 500
Lighting desired		■ Office under fluorescent light 400–500
		■ Library 400–500
		■ Direct light of a flashlight at 1 m distance 250
		■ Streetlight at night 150–200
	100	
	80 Minimum lighting for an object	
	15	■ Cigarette lighter *(at a distance of 30 cm)* 15
	10	■ Candlelight (at a distance of 20 cm) 10–15

CAUTIONS

For safety, strictly observe the following instructions.

- Do not open the cabinet.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not use the unit when there is lightning in the vicinity. Disconnect the power cable of connected equipment.

Avoid using the unit under the following conditions:

- Places subject to excessive humidity or dust.
- Near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- Places subject to soot or steam such as near a cooking stove.
- Places subject to excessive shock or vibration.
- Near a television set (rolling pictures or howling might result).
- Extremely hot places.

Do not expose the unit to high temperatures over 40°C for long periods.

If the unit should be subjected to direct sunlight, or left in a closed car in summer, or placed near a heater, the CCD and the auto-focus sensor may deteriorate and the cabinet may become deformed. Furthermore, this also may cause the transistors and other electronic and mechanical parts to malfunction. Remember the following:

- Do not leave the unit in places of over 50°C
- Do not use the unit in places of over 40°C
- Do not use the unit in places of below 0°C
- Protect the unit from excessively dry or humid conditions (below 35% or above 80% humidity).
- For long storage, select a place between –20°C and 30°C

Take special care for protection of the unit.

- Do not allow the unit to become wet.
- Do not leave the unit in closed cars on hot summer days.
- Take special care not to drop the unit or strike it against hard objects. Protect from shocks during transportation.

Make it a rule to observe the following instructions.

- Do not remove the battery pack or disconnect other power supply units while POWER is set to ON. If not observed, this will cause tape damage and misoperation.
- When the unit is not in use, remove the battery pack.

Always keep the lens and viewfinder eyepiece clean.

- When the lens if dirty or dusty, blow it off first and then gently wipe with a soft brush or lens cleaning paper.
- Mold may form if the lens is left dirty.

Be careful not to damage the CCD.

- Do not keep the lens directed at extremely bright objects such as the sun or other light sources for long periods. Although the CCD is less susceptible to such burn than a tube would be, caution should be exercised when using this unit. Most importantly, the lens should be capped except while actually shooting.
- Do not direct the eyepiece of the viewfinder at the sun.

Handle the unit carefully.

- Protect the microphone from excessive shocks.
- Do not carry the unit by holding it only by the viewfinder.

Moisture condensation.

- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass's outer surface. This same phenomenon occurs on the head drum of a VideoMovie when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the VideoMovie itself.
- If moisture condensation occurs on the head drum, a condensation warning appears in the viewfinder and the unit enters the Stop mode, unable to function. In such a case, wait for a few hours until the indicator disappears.

Maintenance

- When the cabinet is dusty, clean by gently wiping with a soft cloth.
- Avoid the use of strong cleaning agents such as benzine or alcohol as they may damage the cabinet.
- Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

General Battery Precautions

- When the optional RM-V50U/RM-V20U/C-P6U is not functioning even when correctly operated, the batteries are exhausted. Repalce them with fresh batteries.
- Use only following batteries in the unit.

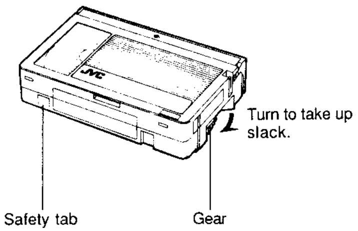
RM-V50U/RM-V20U ....R03 (AAA) size
C-P6U............................R6 (AA) size

Please make note of the followiing rules for battery use. When misused, batteries can leak or explode.

1. Insert the batteries correctly according to the diagram inside the battery section.
2. Do not use old and new batteries together.
3. Do not use two different kinds of batteries Although sizes may be the same, voltages may differ.
4. Do not expose batteries to excessive heat as they can leak, or explode. Do not dispose of batteries in a fire.
5. Remove batteries from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

VIDEO CASSETTES

- The VideoMovie employs only the cassettes carrying the VHS-C mark.
- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- Make certain before loading the cassette that the tape is not slack. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up slack.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.
- To avoid excessive exposure to dust and fingerprints, do not open the front tape cover.



Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first...

Symptoms	Check points
Power	
No power is supplied.	■ Is the battery pack correctly installed? ■ Is the battery pack charged? ■ Is the power supply unit correctly connected?
Recording	
Recording is impossible.	■ Check to see if the cassette safety tab in place. See page 34.
Recording does not start.	■ Have you set PLAY/CAMERA to "CAMERA" first?
Playback	
Tape is running, but no playback picture appears.	■ Is the VIDEO/TV switch of the RF unit set to VIDEO? ■ Is the TV receiver set to your video channel? ■ If A/V connection is used, is the TV's VIDEO/TV switch set to VIDEO?
Noise bars appear in the playback picture.	■ Use TRACKING to reduce noise bars.
Playback picture is blurred or interrupted.	■ Video heads may be dirty or worn out. For head cleaning or replacement, consult the nearest JVC Service Dealer.
Tape transport	
Tape stops during fast forward or rewind.	■ Is the "M" indication visible in the viewfinder? If so, press C. MEMORY to cancel the memory function.
Rewinding or fast forwarding is impossible.	■ Check to see if the tape has already been fully wound on one reel or the other.
Other	
Vertical white lines appear when shooting a very bright object.	■ This may occur when the background contrasts very much with the object. This is normal.
Error message (E01, etc.) appears in the viewfinder.	■ Consult your nearest JVC Service dealer.

The VideoMovie is a microcomputer-controlled device. External noise and interference might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC power adapter, etc.) and clock battery; and then reconnect it and proceed as usual from the beginning.

Special note on head cleaning

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this VideoMovie is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered, please consult your nearest JVC dealer.

- ■ A built-in head cleaner automatically cleans the video heads and head drum whenever a cassette is loaded and unloaded to reduce head clogging.

SPECIFICATIONS

Format : VHS PAL standard
Power source : DC 6 V ⎓
Power consumption : 8 W
Signal system : PAL-type
Video recording system : Luminance: FM recording
Colour: Converted sub-carrier direct recording
Conforms to VHS standard
Cassette : VHS-C cassette
Tape speed : 23.39 mm/sec
Recording time
Max. : 45 minutes (with EC-45 cassette)

VIDEO

Output : 1 Vp-p, 75 ohms, unbalanced (via AV OUT connector)

AUDIO

Output : –6 dBs, 1 k-ohm (via AV OUT connector)

CAMERA

Pick up : 1/3"-format CCD
Minimum required illumination : 3 lux
Illumination range : 3 to 100,000 lux
Lens : F/1.4, f = 6.7 to 54 mm, 8:1 power zoom lens with auto iris and macro control, filter diameter 52 mm
Viewfinder : Electronic viewfinder with 0.6" black/white CRT
Selectable high-speed shutter : Switchable (1/50, 1/60, 1/125, 1/250, 1/500, 1/1000, 1/4000 second)
White balance adjustment : Auto/Manual 9 steps

GENERAL

Operating temperature : 0°C to +40°C
Operating humidity : 35% to 80%
Storage temperature : –20°C to +50°C
Weight : Approx. 810 g
Dimensions : 257(W) x 127(H) x 115(D) mm (incl. viewfinder)

AA-V10EG SPECIFICATIONS

Power requirement : AC 110 to 240 V∿, 50/60 Hz
Power consumption : 23 W
Output : DC 8.5 V ⎓, 1.3 A (Charge), DC 6.3 V ⎓, 1.8 A (VideoMovie)
Charging system : Constant current, peak detection, timer controlled
Dimensions : 150(W) x 42(H) x 68(D) mm
Weight : Approx. 380 g

PROVIDED ACCESSORIES

AC power adapter/battery charger	AA-V10EG
Battery pack	BN-V12U
Battery for clock operation	CR2025
VHS-C cassette	EC-30
A/V output cable	VC-V826E
Cable adapter	

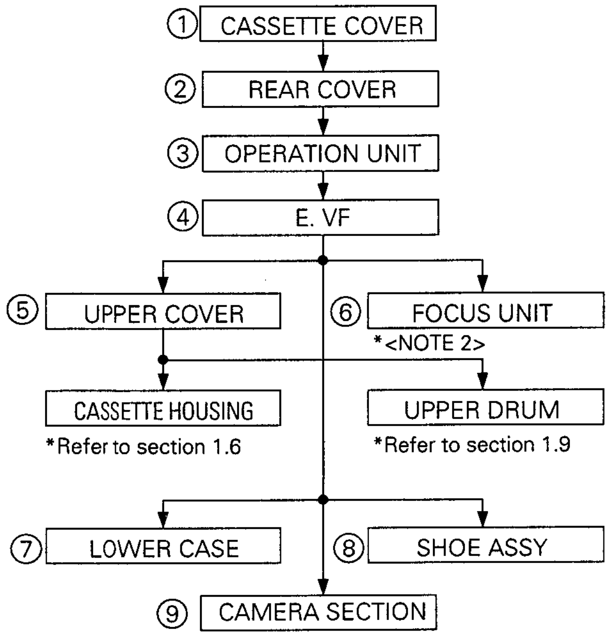
For optional accessories, see page 31.

E. & O.E. Design and specifications subject to change without notice.

1.2 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.2.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.


① CASSETTE COVER
② REAR COVER
③ OPERATION UNIT
④ E. VF
⑤ UPPER COVER
⑥ FOCUS UNIT
*<NOTE 2>
CASSETTE HOUSING
*Refer to section 1.6
UPPER DRUM
*Refer to section 1.9
⑦ LOWER CASE
⑧ SHOE ASSY
⑨ CAMERA SECTION

1.2.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ DUNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER	C1	2(S1) *CASSETTE HOLDER LOCK BOTTOM	–
②	REAR COVER	C2	5(S2)	–
③	OPERATION UNIT	C3	3(S2), 2(S3) *CONNECTORⒶ	<NOTE 1>
④	E. VF	C4	(S2) *CONNECTORⒷ	<NOTE 1>
⑤	UPPER CASE	C5 C6	9(S3)	
⑥	FOCUS UNIT	C5 C6	*CONNECTORⒸ	<NOTE 1>, <NOTE 2>
⑦	LOWER CASE	C7 C8	5(S3), 3(S6) *CONNECTORSⒹ-Ⓗ	<NOTE 1>
⑧	SHOE ASSY	C8	*CONNECTORⒿ	<NOTE 1>
⑨	CAMERA SECTION	C9	*CONNECTORⓀ	<NOTE 1>

List of Abbreviations:

4(S1) = 4 Screws (S1)
3(L1) = 3 Locking Tabs (L1)
3(SD1) = 3 Solder position (SD1)
3(K1) = 3 Positioning pins (K1)

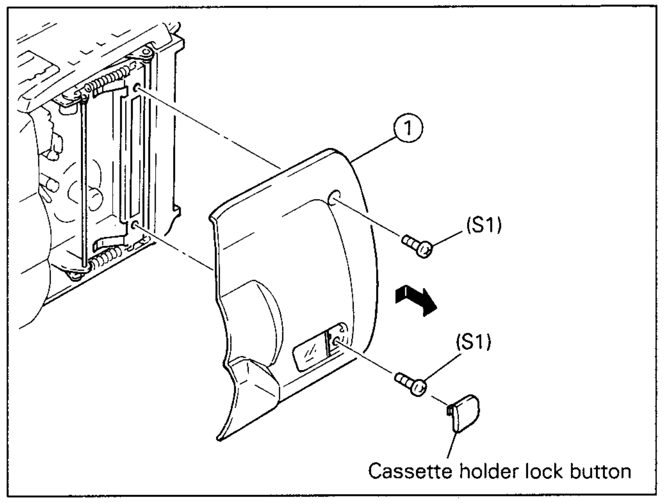

①
(S1)
(S1)
Cassette holder lock button

Fig. C1

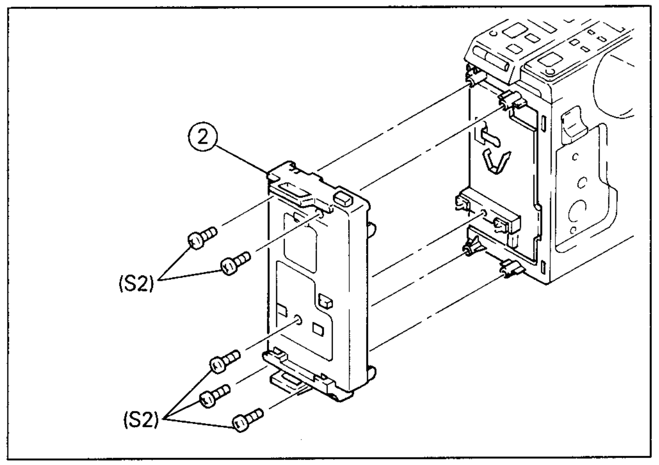


Fig. C2

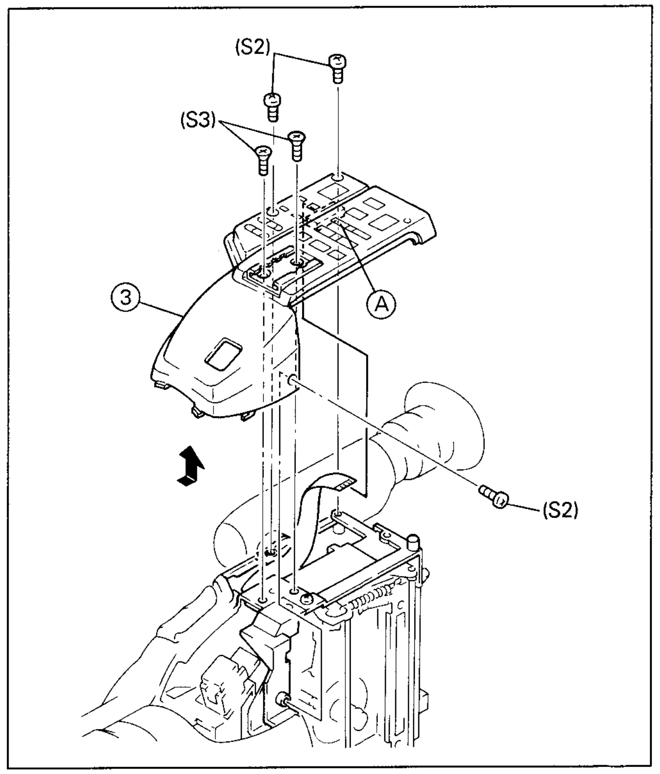


Fig. C3

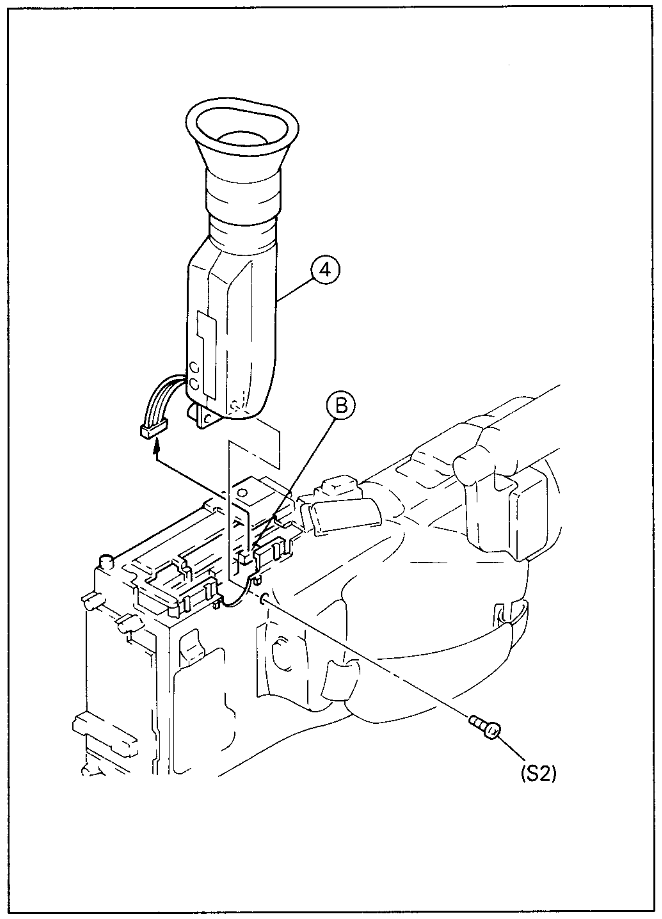


Fig. C4

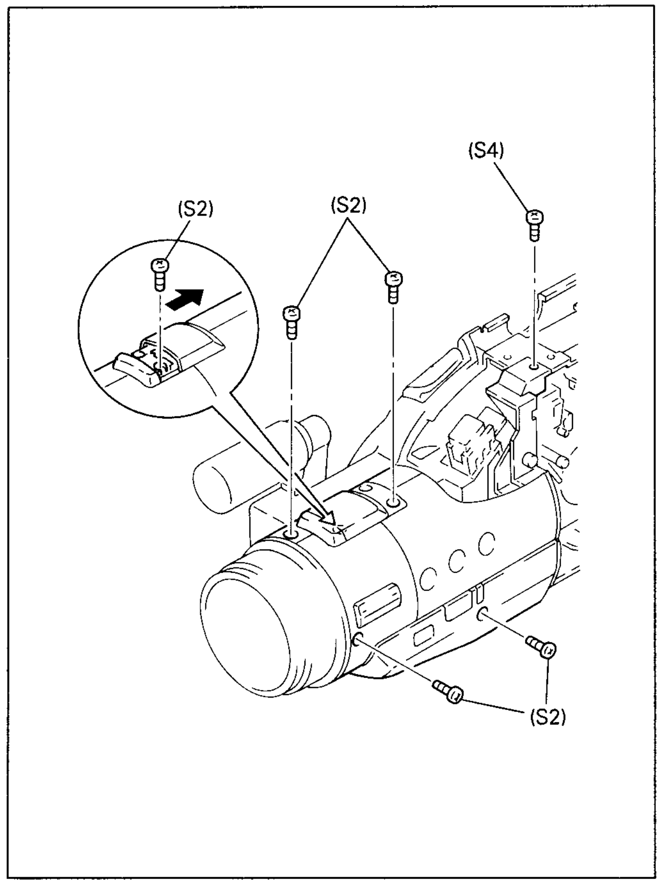


Fig. C5

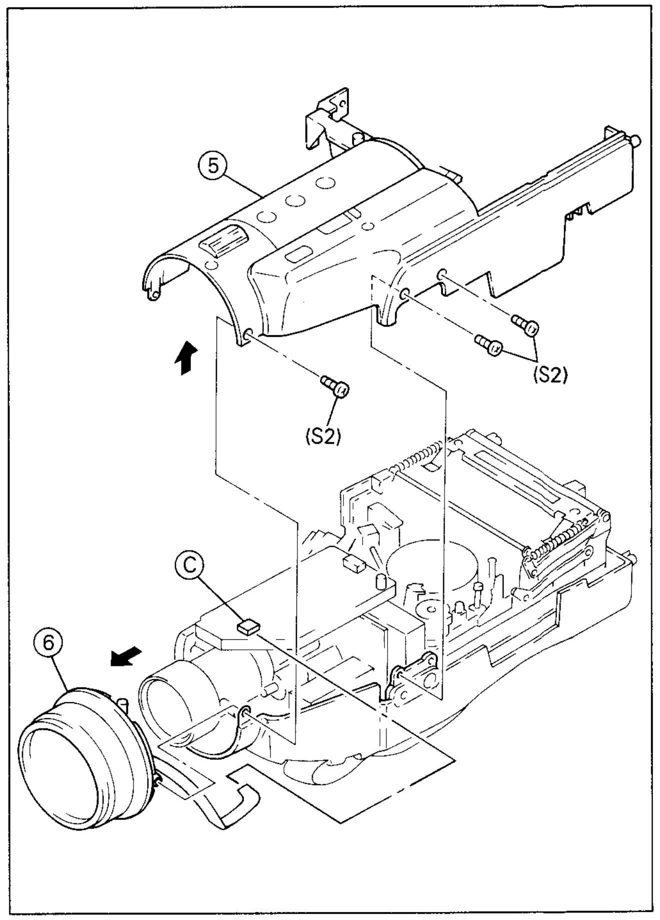


Fig. C6

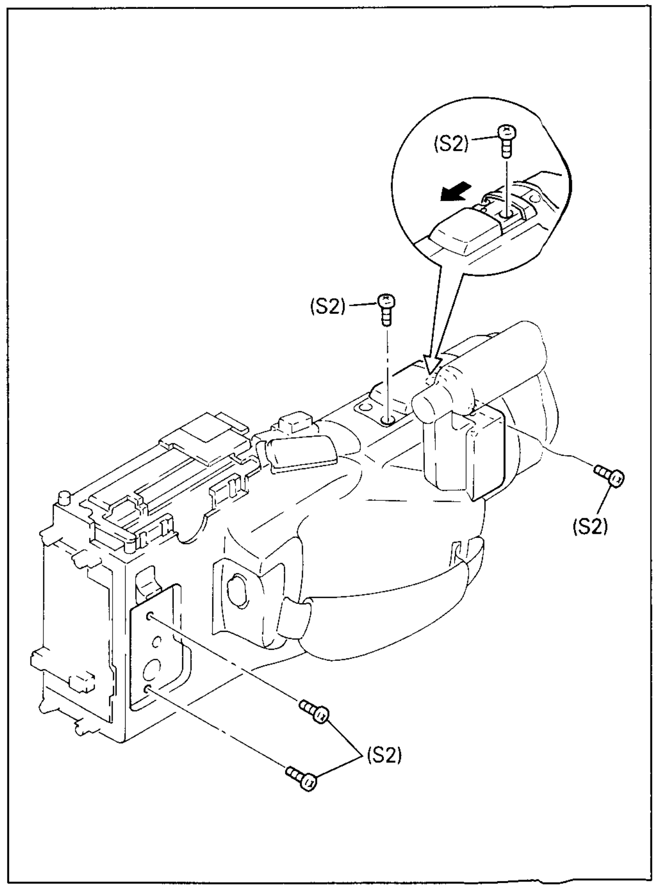


Fig. C7

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENT

1.1 SERVICE CAUTIONS

1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistors, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum assy and tape transport mechanism.)
5. When removing ICs, be careful not to damage circuit patterns.

1.1.2 How to read the disasembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER	C1	2(S1) *CASSETTE HOLDER LOCK BOTTOM	–
②	REAR COVER	C2	5(S2)	–
③	OPERATION UNIT	C3	3(S2), 2(S3) *CONNECTOR Ⓐ	<NOTE 1>

① ③ ⑤ ⑥ ⑦

(For Mechanism Parts)

STEP /LOC. No.	START -ING No.	PART		FIG. No.	REMOVAL	INSTALLATION
					*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	1	SUPPLY REEL DISK ASSY	T	M1	(W1)	<NOTE 3>
②	1	BAND ARM ASSY	T	M1	(W2), (P1), *(L1)	—
③	1	BAND REEL ASSY	T	M1	—	—
④	1	CAM SWITCH ASSY	T	M1	*2(L2)	See, Adjustment procedure for Mechanism Item 1-10, <NOTE 4>
⑤	1-2,5	TENTION ARM ASSY	T	M2	(W3)	<NOTE 3>
⑥	6	END SENSOR BKT ASSY	T	M2	(S1), CONNECTOR Ⓐ	<NOTE 1>
⑦	7	CASSETTE BLOCK	T	M3	(S2)	—

① ② ③ ④ ⑤ ⑥ ⑦

① : Order of steps in Procedure
When reassembling, preform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

② : Starting No. followed by corresponding part which can be removed at this stage.
See example below.
Example:
SUPPLY REEL DISK ASSY can be removed without removing any other parts.
But BAND ARM ASSY can be removed only after removing SUPPLY REEL DISK ASSY (No.1).

③ : Part to be removed or installed.

④ : Location of part.
T = Top
B = Bottom

⑤ : Fig. No. showing Procedure or Part Location.
C = Cabinet
CA = Camera
D = Deck
M = Mechanism

⑥ : Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
2(S1) = 2 Screws (S1)

⑦ : Adjustment information for installation.
(+) = Refer to Exploded Views for Lubrication information.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

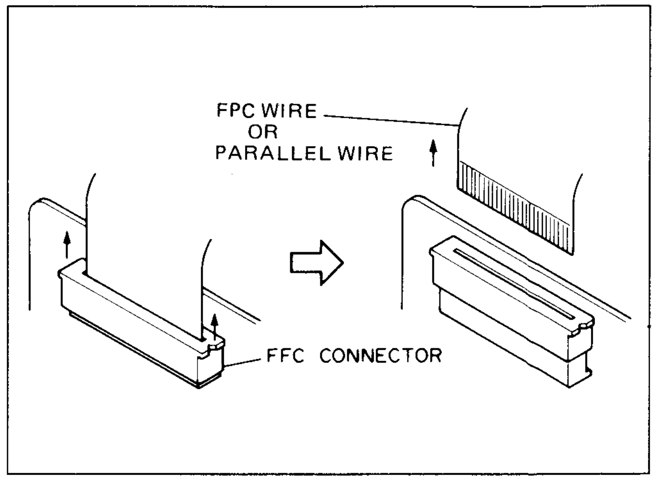


Fig. 1 TYPE A

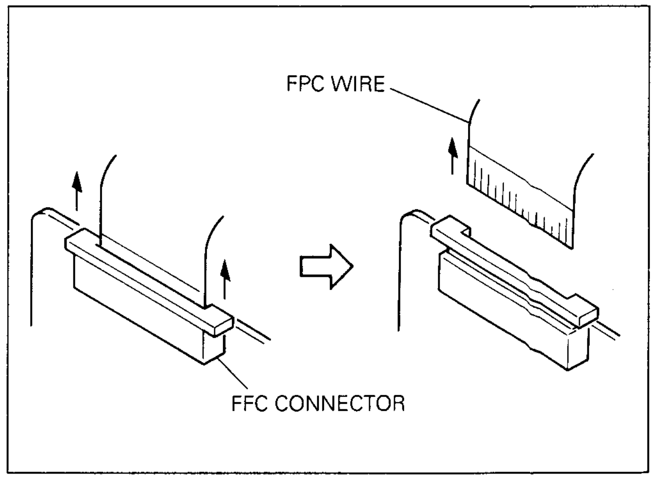


Fig. 2 TYPE B

2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

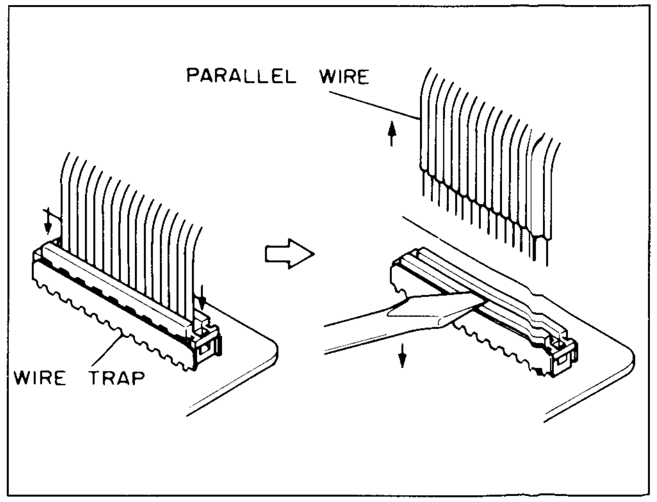


Fig. 3

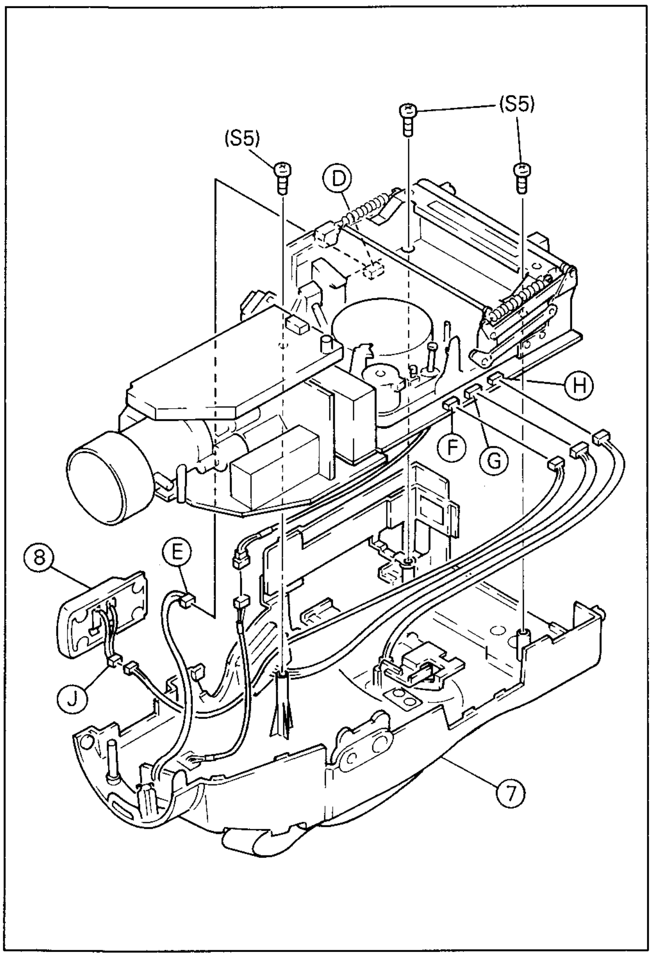


Fig. C8

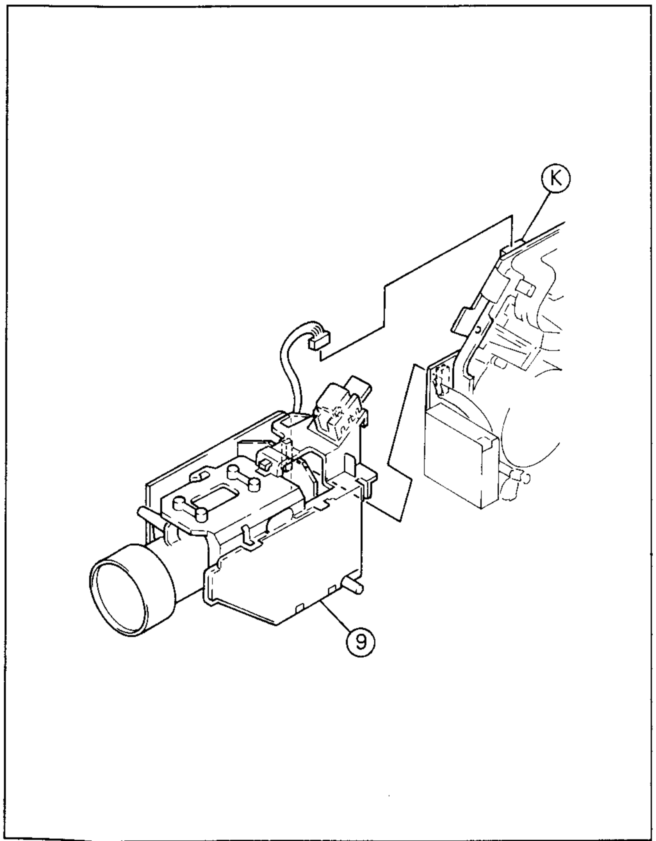


Fig. C9

Reference Notes:
<NOTE 1>
Destination of connectors
Note: three kinds of double-arrows in connection tables respectively show kinds of connector/wires.

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

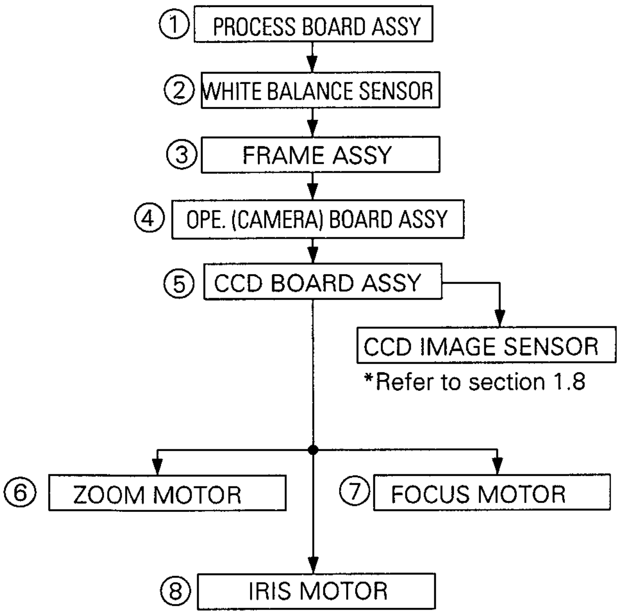
Connector	No. of Pins	Connector
Ⓐ	12	OPERATION UNIT ⇔ MAIN CN1
Ⓑ	7	E. VF ↔ MAIN CN2
Ⓒ	3	FOCUS UNIT ↔ CAM. OPE. CN32
Ⓓ	2	TALLY CN1 ↔ MAIN CN14
Ⓔ	2	MIC ASSY ↔ MAIN CN11
Ⓕ	4	SHOE WIRE ↔ MAIN CN15
Ⓖ	3	ZOOM SWITCH ↔ MAIN CN13
Ⓗ	2	TRIGGER CN1 ↔ MAIN CN12
Ⓙ	2	SHOE WIRE ↔ SHOE ASSY
Ⓚ	5	CAM. OPE. CN31 ↔ MAIN CN4

<NOTE 2>
- For GR-M3, this is not called "CONNECTOR" but is named "RING ASSY".

1.3 DISASSEMBLY/ASSEMBLY OF CAMERA PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the CAMERA parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.



① PROCESS BOARD ASSY
② WHITE BALANCE SENSOR
③ FRAME ASSY
④ OPE. (CAMERA) BOARD ASSY
⑤ CCD BOARD ASSY
CCD IMAGE SENSOR
*Refer to section 1.8
⑥ ZOOM MOTOR
⑦ FOCUS MOTOR
⑧ IRIS MOTOR

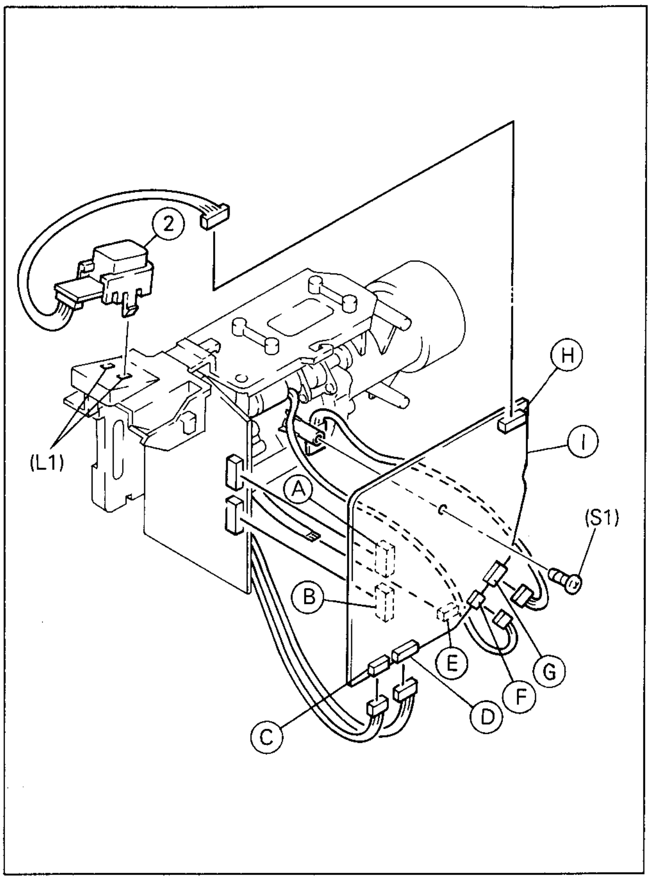


Fig. CA1

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ DUNPLUG/UNCLAMP/ UNSOLDER	Note
①	PROCESS BOARD ASSY	CA1	(S1) *CONNECTORS Ⓐ-Ⓖ	<NOTE 1>
②	WHITE BALANCE SENSOR	CA1	*2(L1) *CONNECTORⒽ	<NOTE 1>
③	FRAME ASSY	CA2	2(S1)	–
④	OPERATION (CAMERA) BOARD ASSY	CA3	*2(L2)	–
⑤	CCD BOARD ASSY	CA4	2(S2) *CONNECTORⒿ *OP BLOCK	<NOTE 1> <NOTE 2>
⑥	ZOOM MOTOR	CA5	2(S3)	
⑦	FOCUS MOTOR	CA6	2(S4)	
⑧	IRIS MOTOR	CA7	2(S5)	<NOTE 3>

List of Abbreviations:

4(S1) = 4 Screws (S1)
3(L1) = 3 Locking Tabs (L1)
3(SD1) = 3 Solder position (SD1)
3(K1) = 3 Positioning pins (K1)

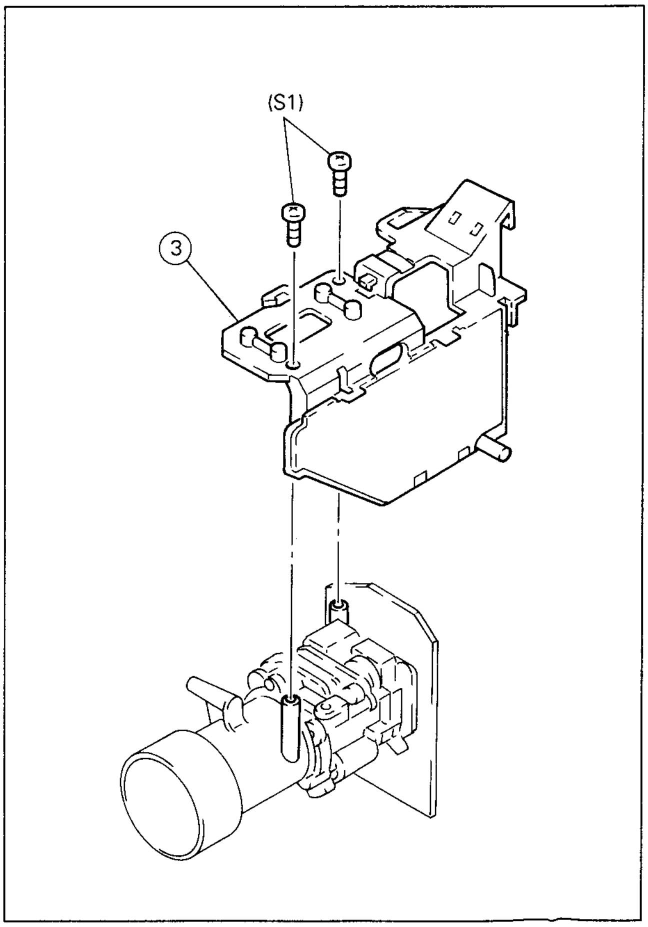


Fig. CA2

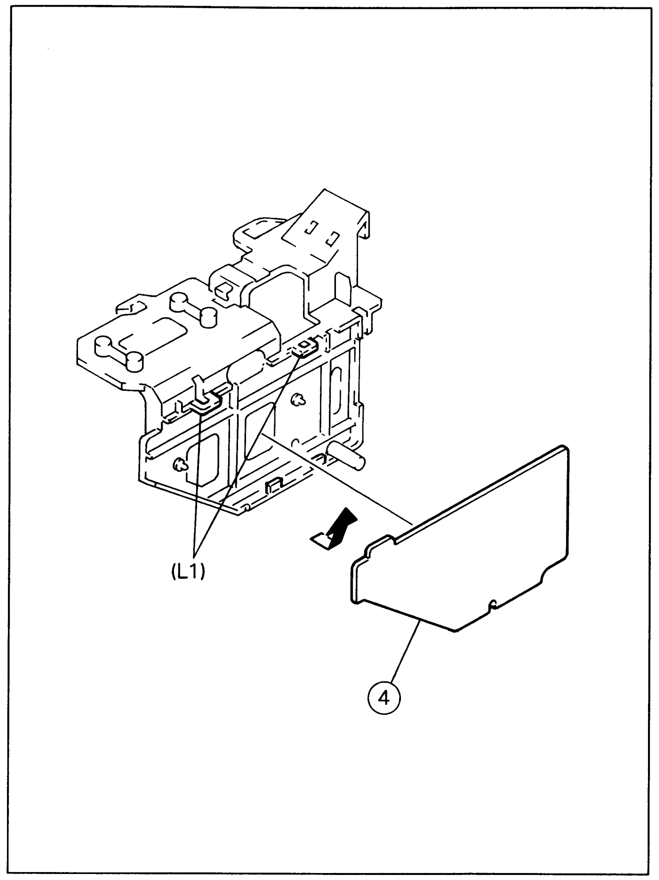


Fig. CA3

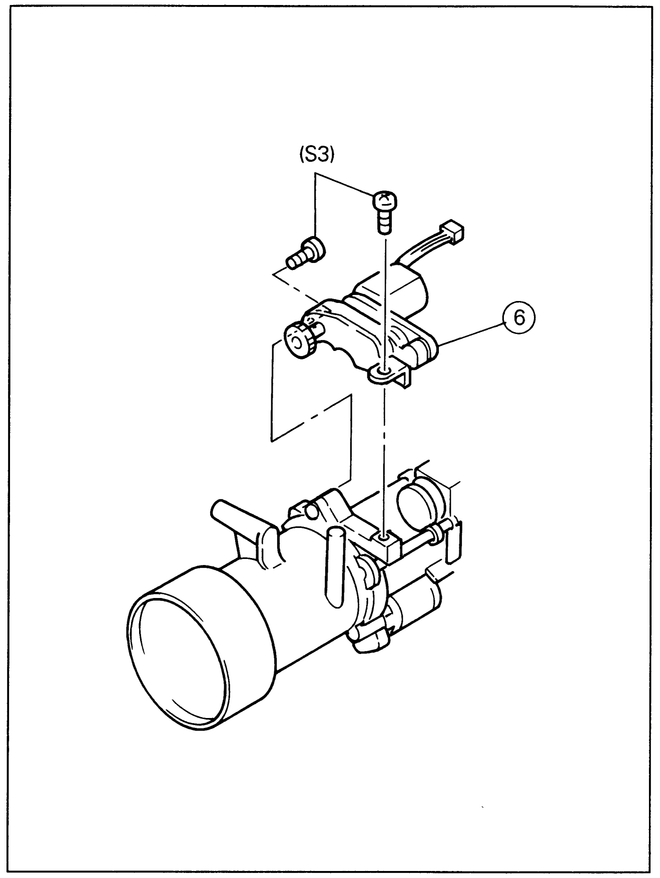


Fig. CA5

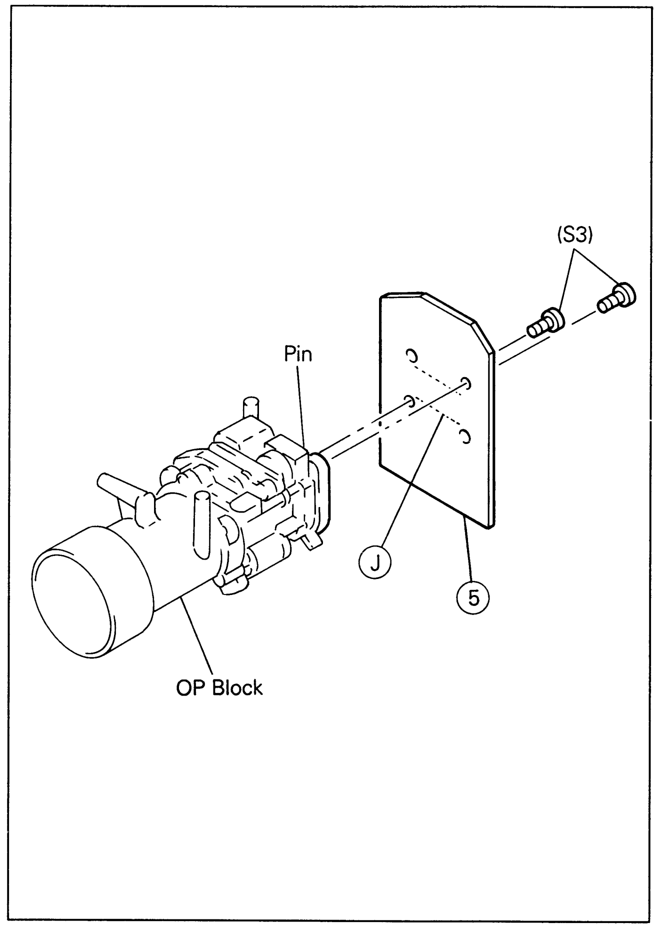


Fig. CA4

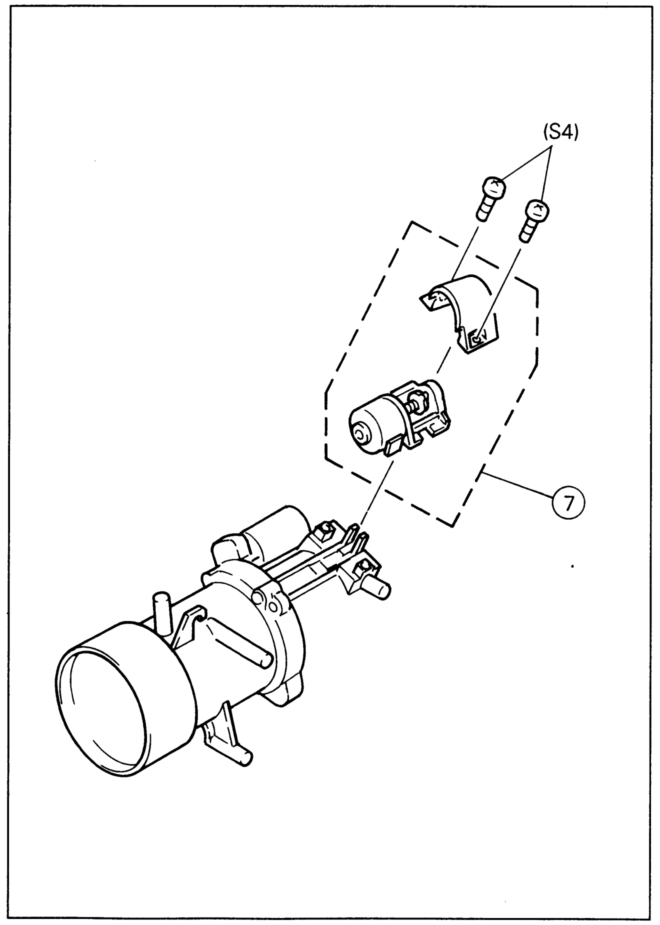


Fig. CA6

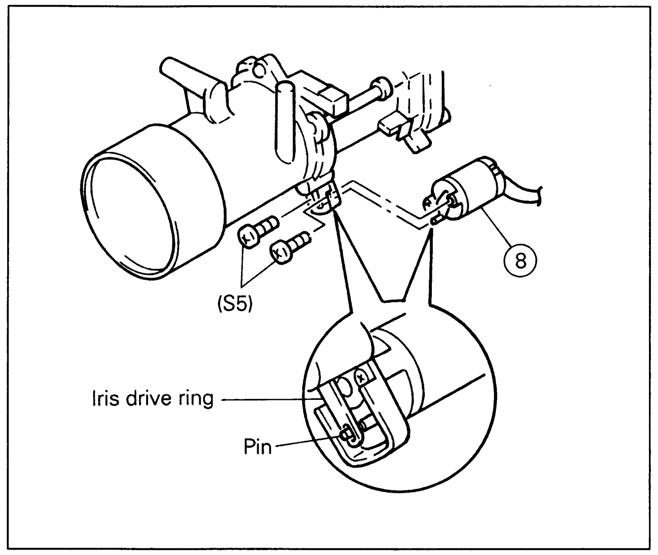


Fig. CA7

Reference Notes:

<NOTE 1>

Destination of connectors

Note: three kinds of double-arrows in connection tables respectively show kinds of connector/wires.

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Connector	No. of Pins	Connector
Ⓐ	16	PROCESS CN21 ⬌ CCD CN11
Ⓑ	18	PROCESS CN22 ⬌ CCD CN12
Ⓒ	3	PROCESS CN26 ↔ ZOOM ENCODER
Ⓓ	4	PROCESS CN25 ↔ INFINITE SENSOR
Ⓔ	8	PROCESS CN29 ⇔ IRIS MOTOR
Ⓕ	2	PROCESS CN27 ↔ ZOOM MOTOR
Ⓖ	4	PROCESS CN28 ↔ FOCUS MOTOR
Ⓗ	7	PROCESS CN24 ↔ WHITE BALANCE SENSOR
Ⓙ	16	CCD CN14 ⬌ CCD SOCKET

<NOTE 2>

1. Remove two screws.
2. Move the CCD board in the direction of the arrow. At that time, Pay careful attention to pins of the CCD image sensor so as not to damage them.

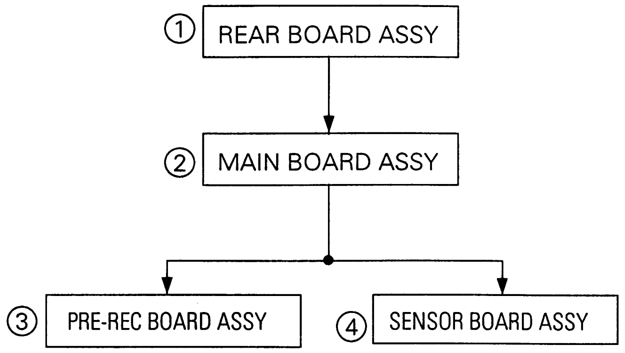
<NOTE 3>

When installing the iris motor, make sure that the iris motor's pin is exactly inserted into the hole of the iris drive ring in the OP side.

1.4 DISASSEMBLY/ASSEMBLY OF DECK PARTS

1.4.1 Disassembly flow chart

This flowchart indicates the disassembly step for the DECK parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.

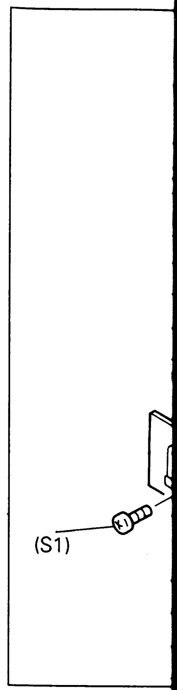


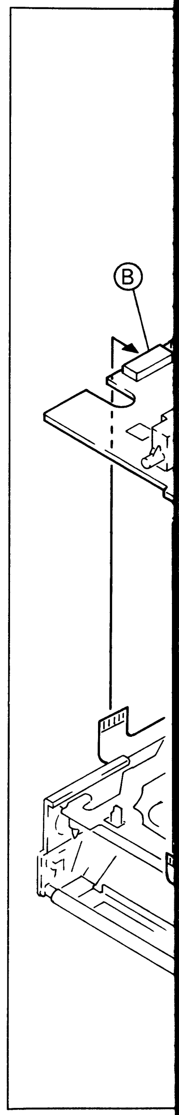
1.4.2 Disassembly method

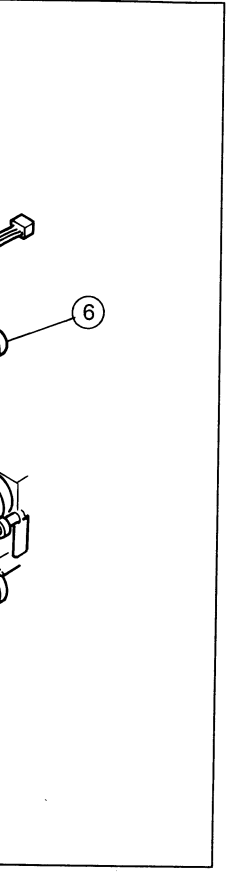
STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ DUNPLUG/UNCLAMP/ UNSOLDER	Note
①	REAR BOARD ASSY	D1	(S1) *CONNECTOR Ⓐ	<NOTE 1>
②	MAIN BOARD ASSY	D2	2(S2) *CONNECTORS Ⓑ-Ⓕ	<NOTE 1>
③	PRE-REC BOARD ASSY	D3	(S3) *CONNECTOR Ⓖ	<NOTE 1>
④	SENSOR BOARD ASSY	D3	4(S4) *CONNECTORS Ⓗ-Ⓙ	<NOTE 1> <NOTE 2>

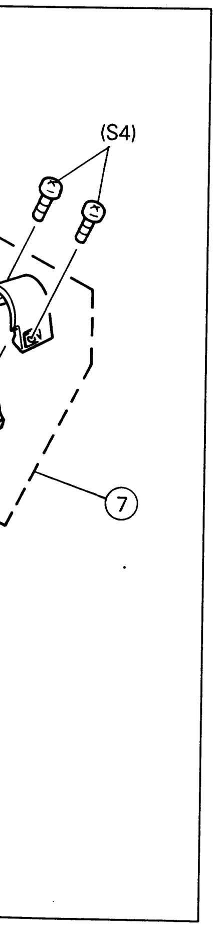
List of Abbreviations:

4(S1) = 4 Screws (S1)
3(L1) = 3 Locking Tabs (L1)
3(SD1) = 3 Solder position (SD1)
3(K1) = 3 Positioning pins (K1)









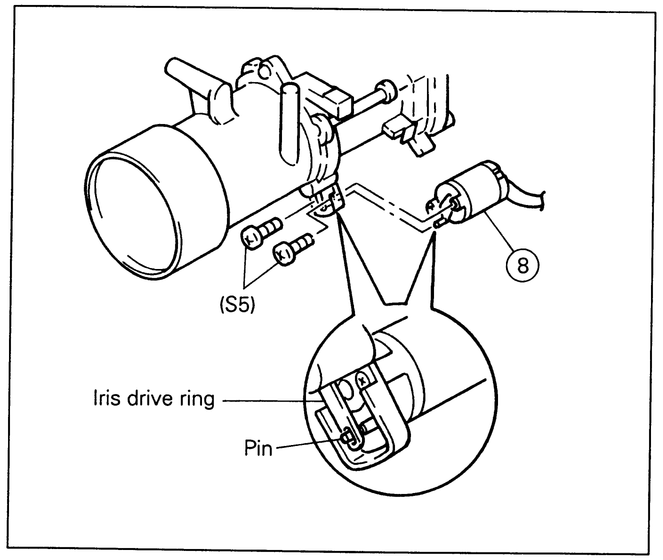


Fig. CA7

Reference Notes:

<NOTE 1>

Destination of connectors

Note: three kinds of double-arrows in connection tables respectively show kinds of connector/wires.

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓐ	16	PROCESS CN21 ⬌ CCD CN11
Ⓑ	18	PROCESS CN22 ⬌ CCD CN12
Ⓒ	3	PROCESS CN26 ↔ ZOOM ENCODER
Ⓓ	4	PROCESS CN25 ↔ INFINITE SENSOR
Ⓔ	8	PROCESS CN29 ⇔ IRIS MOTOR
Ⓕ	2	PROCESS CN27 ↔ ZOOM MOTOR
Ⓖ	4	PROCESS CN28 ↔ FOCUS MOTOR
Ⓗ	7	PROCESS CN24 ↔ WHITE BALANCE SENSOR
Ⓙ	16	CCD CN14 ⬌ CCD SOCKET

<NOTE 2>

1. Remove two screws.
2. Move the CCD board in the direction of the arrow. At that time, Pay careful attention to pins of the CCD image sensor so as not to damage them.

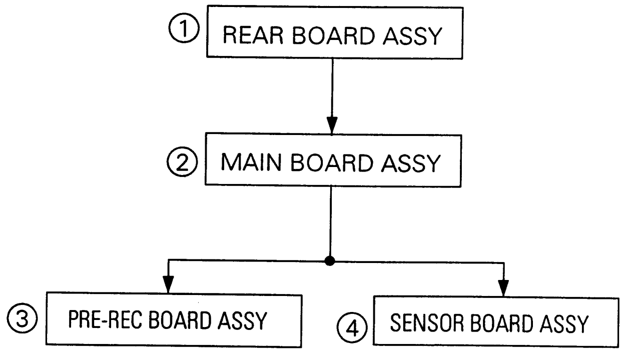
<NOTE 3>

When installing the iris motor, make sure that the iris motor's pin is exactly inserted into the hole of the iris drive ring in the OP side.

1.4 DISASSEMBLY/ASSEMBLY OF DECK PARTS

1.4.1 Disassembly flow chart

This flowchart indicates the disassembly step for the DECK parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.



1.4.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ DUNPLUG/UNCLAMP/ UNSOLDER	Note
①	REAR BOARD ASSY	D1	(S1) *CONNECTOR Ⓐ	<NOTE 1>
②	MAIN BOARD ASSY	D2	2(S2) *CONNECTORS Ⓑ-Ⓕ	<NOTE 1>
③	PRE-REC BOARD ASSY	D3	(S3) *CONNECTOR Ⓖ	<NOTE 1>
④	SENSOR BOARD ASSY	D3	4(S4) *CONNECTORS Ⓗ-Ⓙ	<NOTE 1> <NOTE 2>

List of Abbreviations:

4(S1) = 4 Screws (S1)
3(L1) = 3 Locking Tabs (L1)
3(SD1) = 3 Solder position (SD1)
3(K1) = 3 Positioning pins (K1)

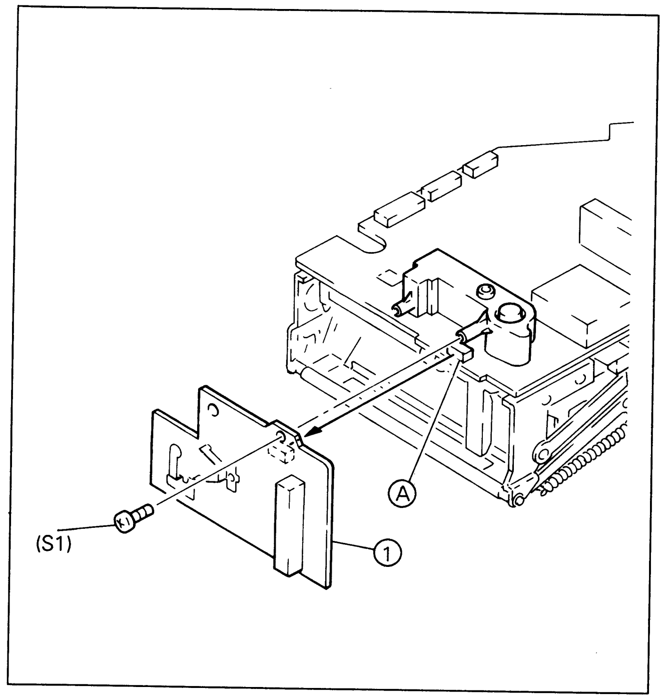


Fig. D1

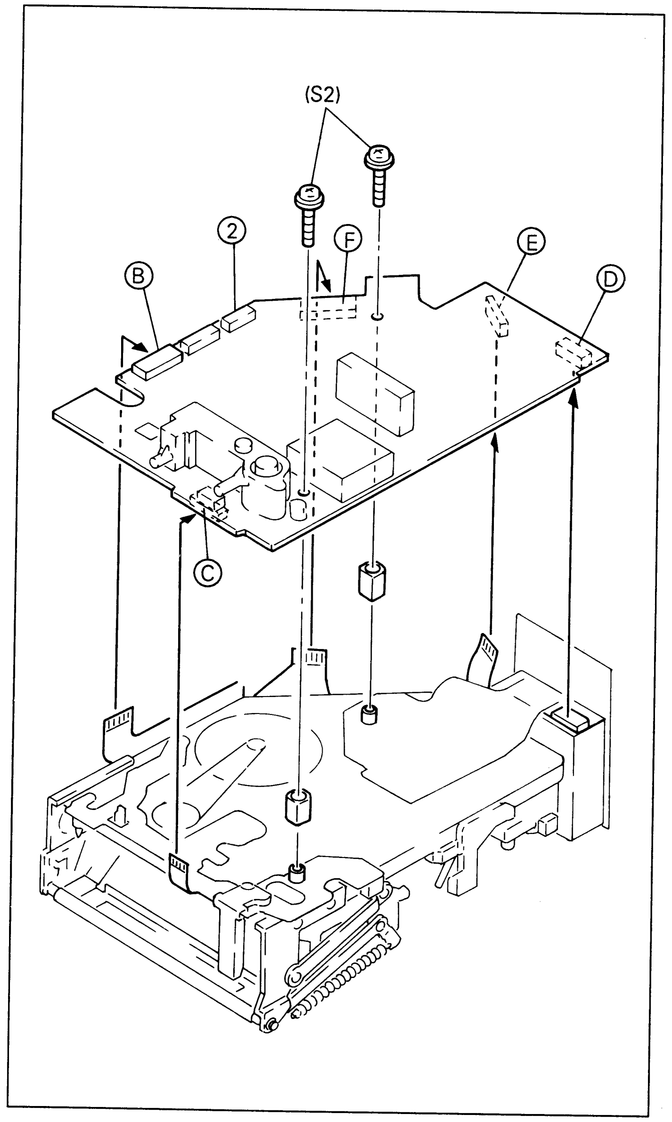


Fig. D2

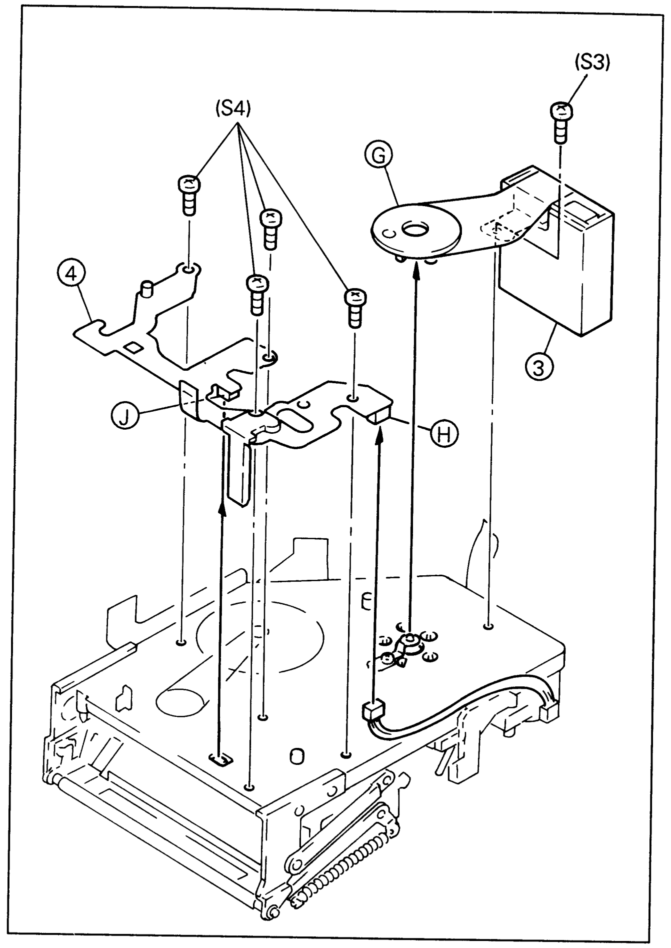


Fig. D3

Reference Notes:

<NOTE 1>

Destination of connectors

Note: three kinds of double-arrows in connection tables respectively show kinds of connector/wires.

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓐ	16	MAIN CN9 ⬌ REAR CN41
Ⓑ	11	MAIN CN1 ⇔ A/C HEAD
Ⓒ	13	MAIN CN10 ⇔ SENSOR CN1
Ⓓ	18	MAIN CN8 ⬌ PRE-REC CN1
Ⓔ	18	MAIN CN6 ⇔ DRUM MOTOR
Ⓕ	18	MAIN CN5 ⇔ CAPSTAN MOTOR
Ⓖ	18	PRE-REC CN2 ⬌ DRUM MOTOR
Ⓗ	4	SENSOR CN2 ↔ MODE CTL MOTOR, END SENSOR BKT ASSY
Ⓙ	3	SENSOR CN3 ⬌ REEL SENSOR

<NOTE 2>

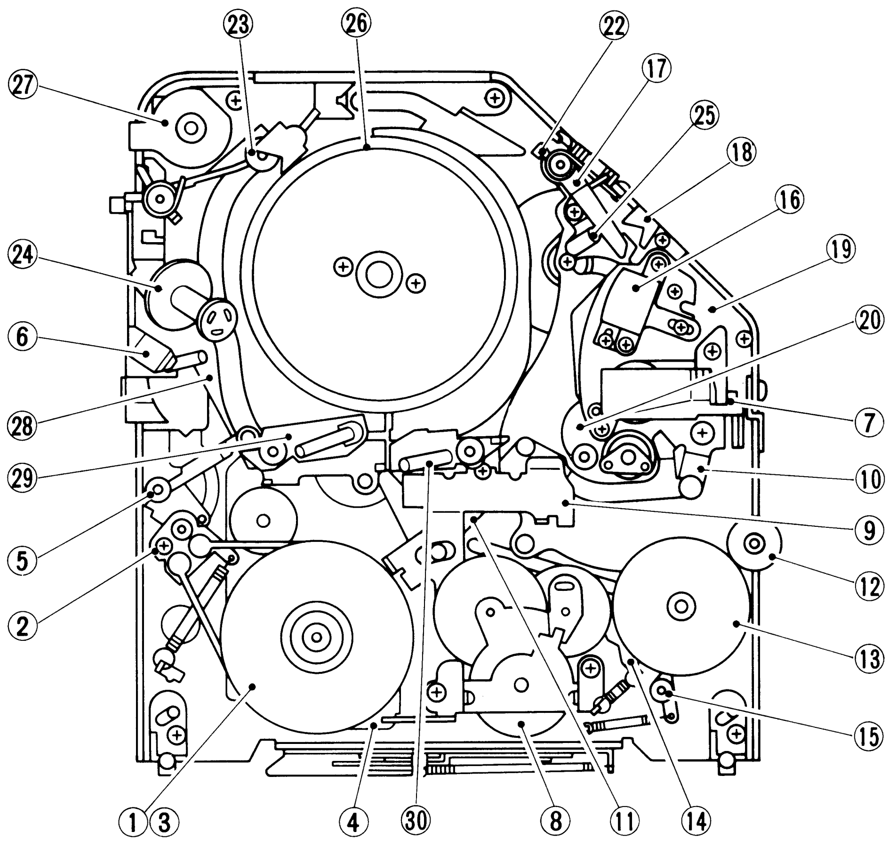
When disconnecting, do it very carefully since the other side connector Ⓙ is attached to a flexible wire.

1.5 DISASSEMBLY/ASSEMBLY OF MECHANISM PARTS

This procedure starts with the condition that the cabinet parts and deck parts. Also, all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

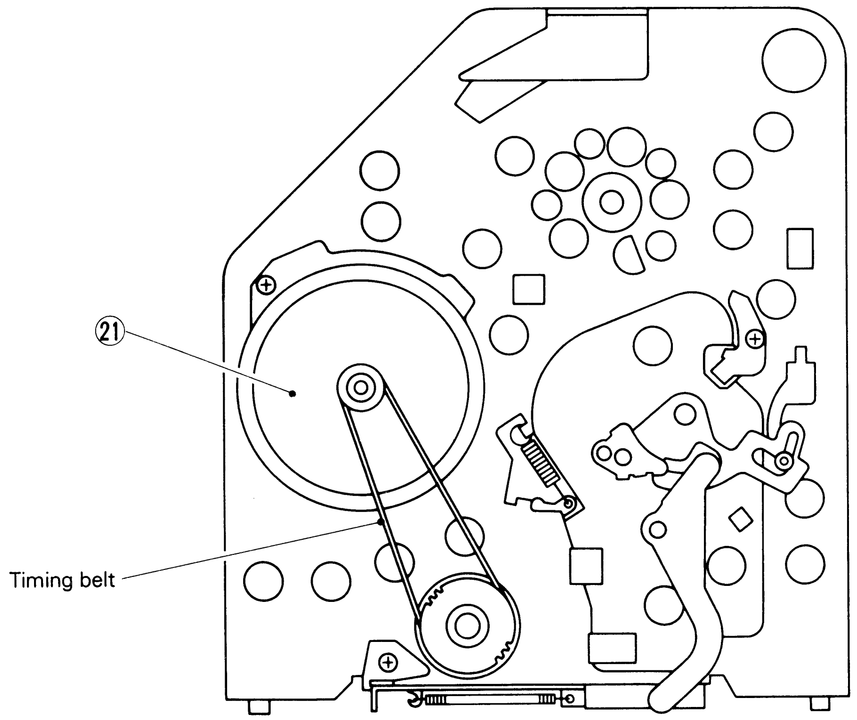
STEP /LOC. No.	START -ING No.	PART		FIG. No.	REMOVAL	INSTALLATION
					*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	1	SUPPLY REEL DISK ASSY	T	M1	(W1)	<NOTE 3>
②	1	BAND ARM ASSY	T	M1	(W2), (P1), *(L1)	–
③	1	BAND REEL ASSY	T	M1	–	–
④	1	CAM SWITCH ASSY	T	M1	*2(L2)	See, Adjustment procedure for Mechanism Item 1-10
⑤	1,5	TENTION ARM ASSY	T	M2	(W3)	<NOTE 3>
⑥	6	END SENSOR BKT ASSY	T	M2	(S1), CONNECTOR Ⓐ	<NOTE 1>
⑦	7	CASSETTE BLOCK	T	M3	(S2)	–
⑧	8	CLUTCH UNIT	T	M3	2(S3), (P2), *(L3) TIMING BELT	–
⑨	8	GUIDE PLATE	T	M4	2(S4)	–
⑩	8	PINCH ROLLER ARM ASSY	T	M4	(S5)	–
⑪	8	SPRING PLATE ASSY	T	M4	(P3), *(L4)	–
⑫	12	TAKE-UP GEAR	T	M5	(W4)	–
⑬	12	TAKE-UP CLUTCH GEAR	T	M5	(W5)	<NOTE 3>
⑭	12	SEARCH BRAKE SUB ASSY	T	M5	(W6), (P4), *(L5)	–
⑮	8,12	SEARCH BRAKE LEVER	T	M5	–	–
⑯	16	A/C HEAD ASSY	T	M6	2(S6),CONNECTOR Ⓑ	<NOTE 1>, <NOTE 3>
⑰	17	LOCK ARM (2) ASSY	T	M6	(W7), (P5), *2(L6), (P6), *2(L7)	–
⑱	17	MIDDLE POLE CATCHER ASSY	T	M7	(S2), (S7)	–
⑲	17	SUB DECK ASSY	T	M7	(S7), (S8)	
⑳	17	MIDDLE POLE ARM ASSY	T	M7	–	–
㉑	17	CAPSTAN MOTOR ASSY	T	M8	2(S3), (S9)	–
㉒	17	LOCK ARM (1)	T	M8	–	–
㉓	23	HEAD CLEANER ASSY	T	M9	(W8), *2(L8)	–
㉔	23	IMPEDANCE ROLLER ARM ASSY	T	M9	(W9), *2(L9)	–
㉕	25	SUPPLY SLANT POLE ASSY	T	M9	(S2)	–
㉖	23	DRUM ASSY	T ,B	M10 ,M11	2(S10), (S2) *BRUSH	<NOTE 2>, <NOTE 3>
㉗	26	MODE CTL MOTOR	T	M10	2(S11)	–
㉘	26,28	SUPPLY GUIDE RALL	T	M12	2(S12)	–
㉙	26,29	SUPPLY POLE BASE ASSY	T	M12	(S13)	–
㉚	26,28,30	TAKE-UP POLE BASE ASSY	T	M12	(S13)	–
㉛	1-31	SUPPLY RING GEAR	T	M13	(W10)	See, Adjustment procedure for Mechanism Item 1-10
㉜	31	SUPPLY MIDDLE GEAR	T	M13	(W11)	See, Adjustment procedure for Mechanism Item 1-10
㉝	31	LOADING GUIDE 2	T	M13	–	–
㉞	32,34	LOADING GIDE	T	M14	3(W12), 3(W13)	–
㉟	31,35	DRIVE GEAR	T	M14	–	–
㊱	34,36	LOADING RING	T	M14	–	See, Adjustment procedure for Mechanism Item 1-10
㊲	34,37	MIDDLE POLE CAM GEAR	T	M14	–	See, Adjustment procedure for Mechanism Item 1-10
㊳	35,38	LOADING GEAR 2	T	M15	(W14)	–
㊴	35,39	ENCODER GEAR (1)	T	M15	(W15)	See, Adjustment procedure for Mechanism Item 1-10
㊵	39,40	ENCODER GEAR (2)	T	M15	–	–
㊶	39,41	CONTROL CAM GEAR	T	M15	(W16)	See, Adjustment procedure for Mechanism Item 1-10

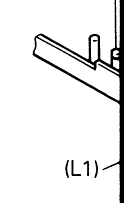
TOP VIEW

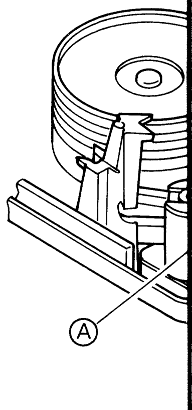


Note: For ㉛ to ㊶ , refer to page 1-19 of this manual.

BOTTOM VIEW







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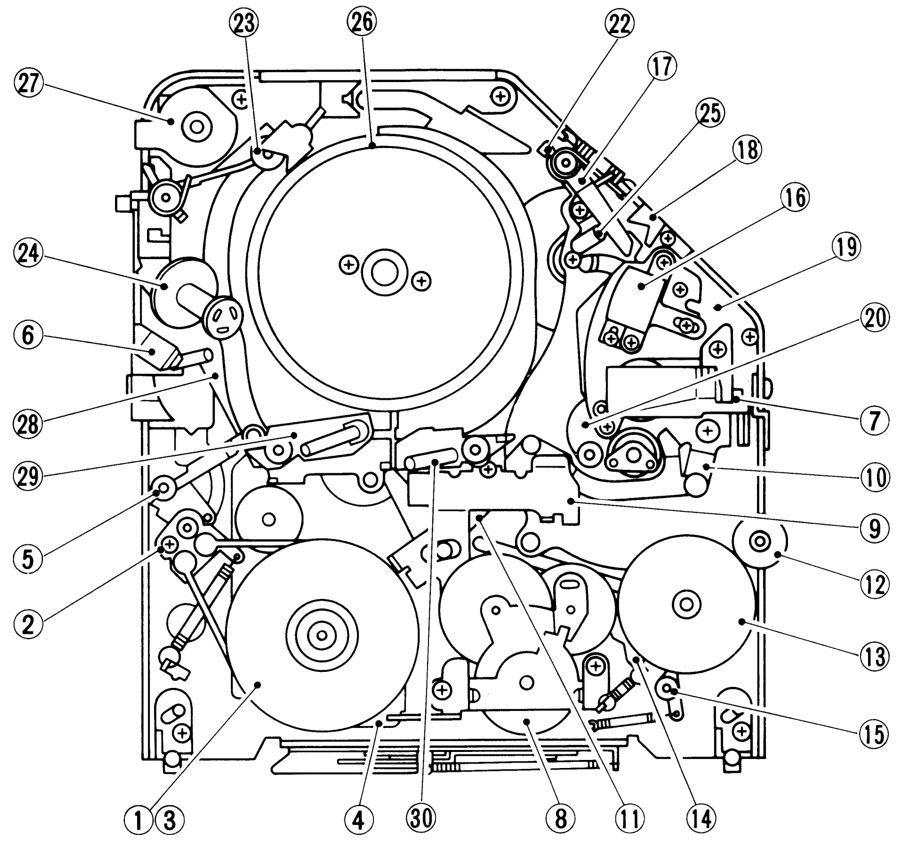
TOP VIEW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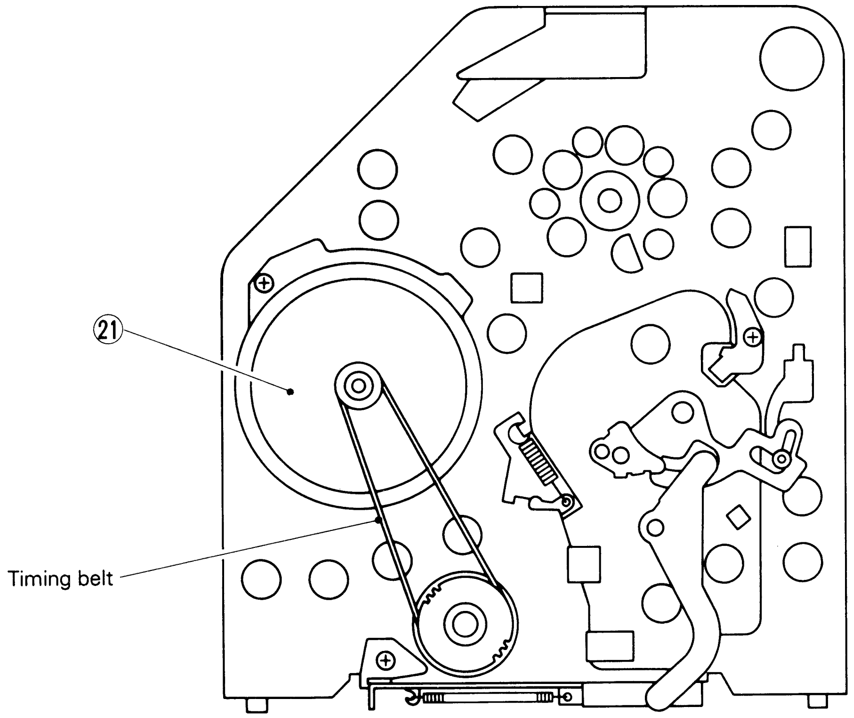
Note: For ㉛ to ㊶ , refer to page 1-19 of this manual.

BOTTOM VIEW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Timing belt

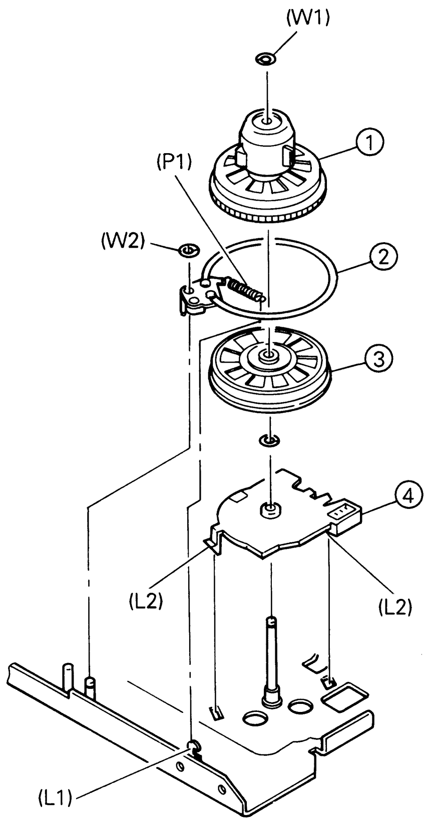
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Fig. M1

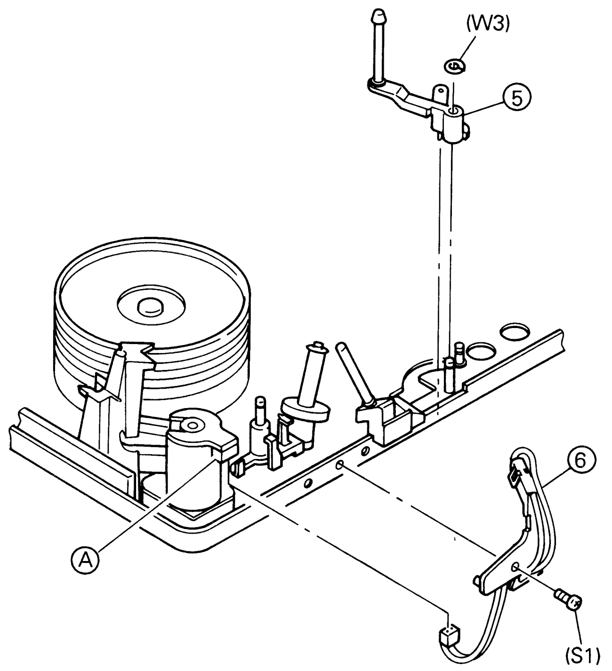
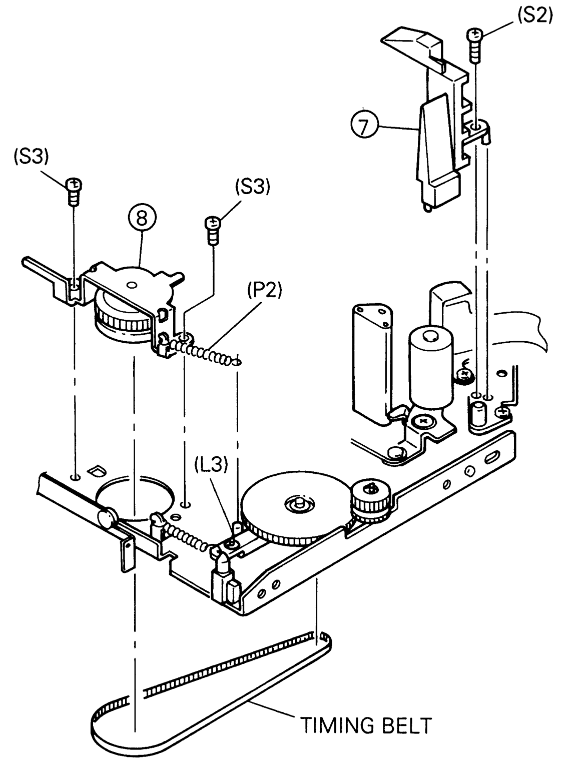


Fig. M2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TIMING BELT

Fig. M3

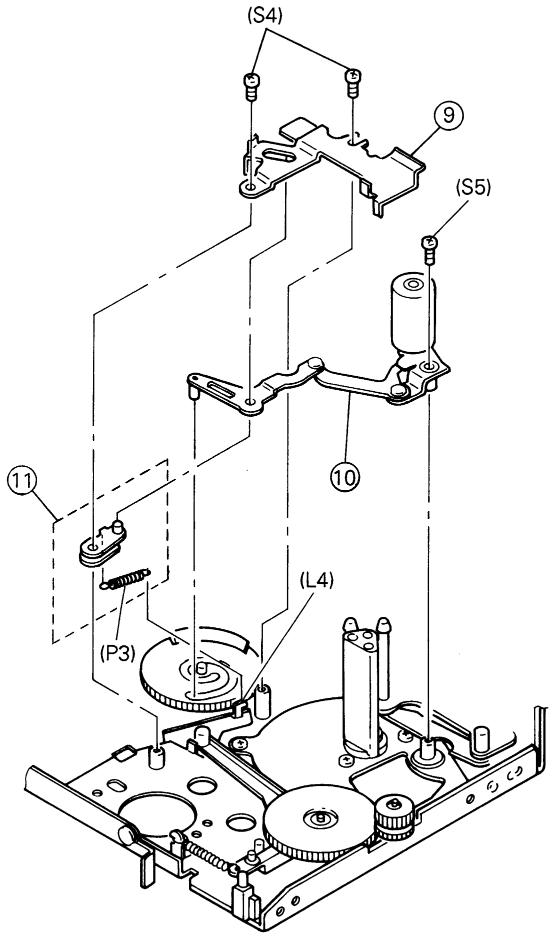
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Fig. M4

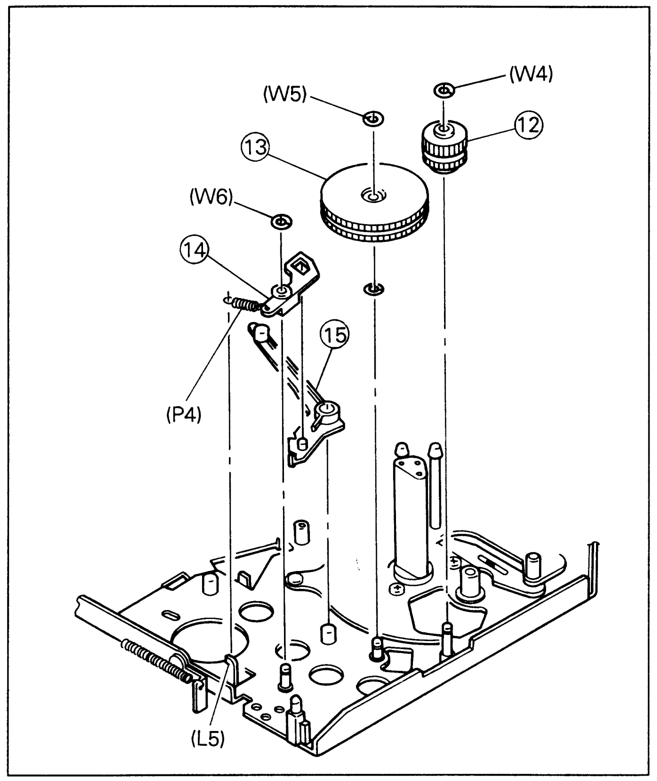
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Fig. M5

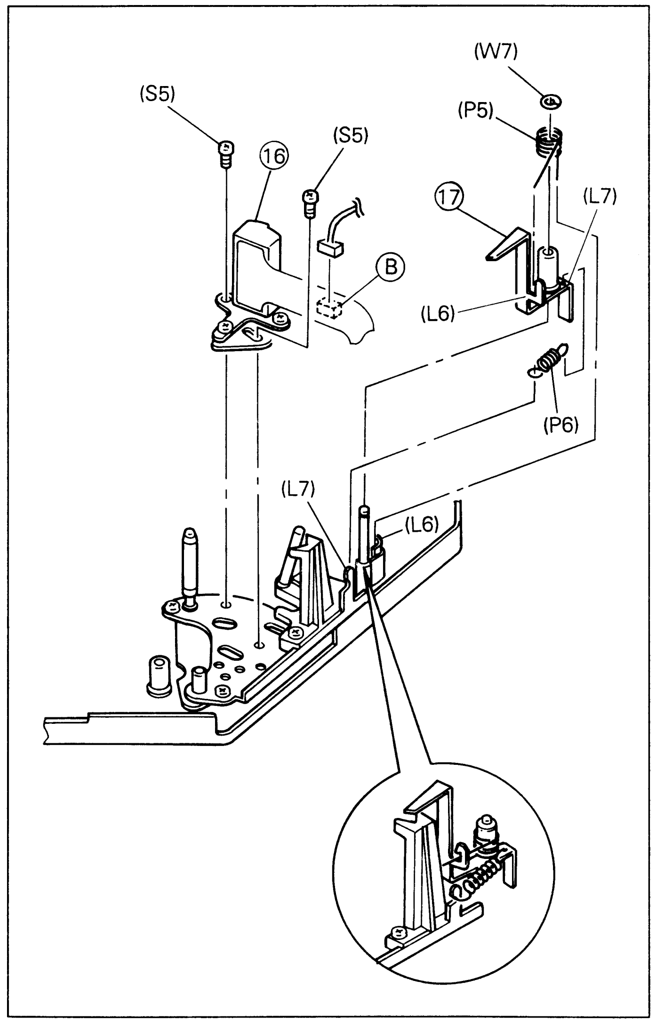
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Fig. M6

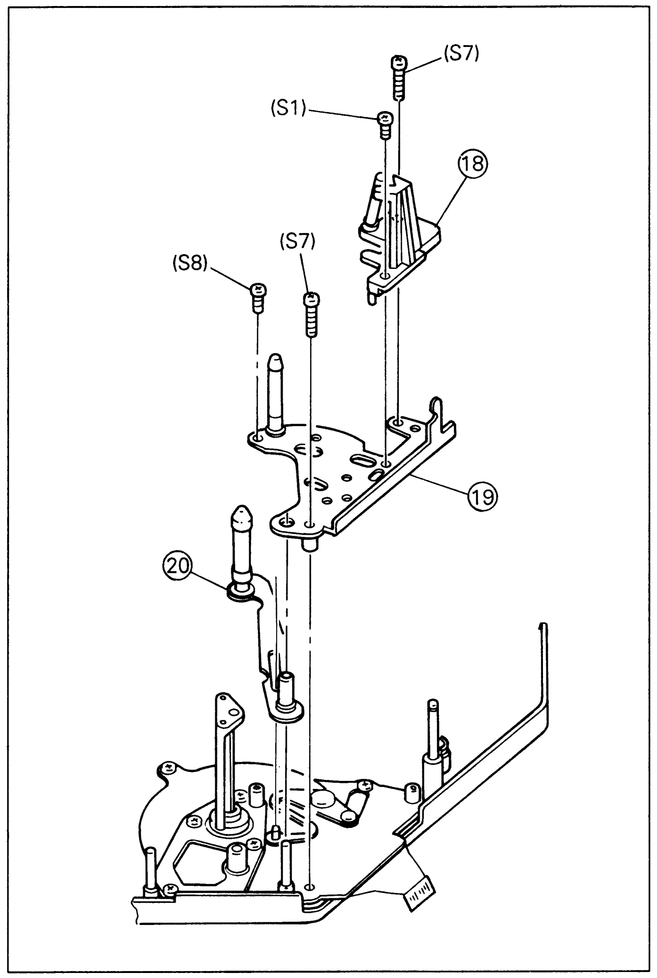
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Fig. M7

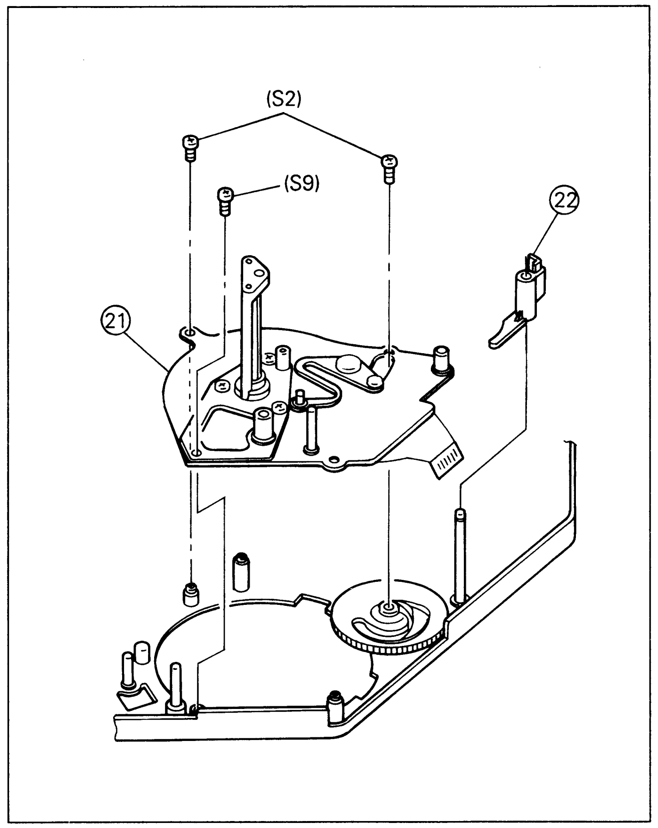

Fig. M8

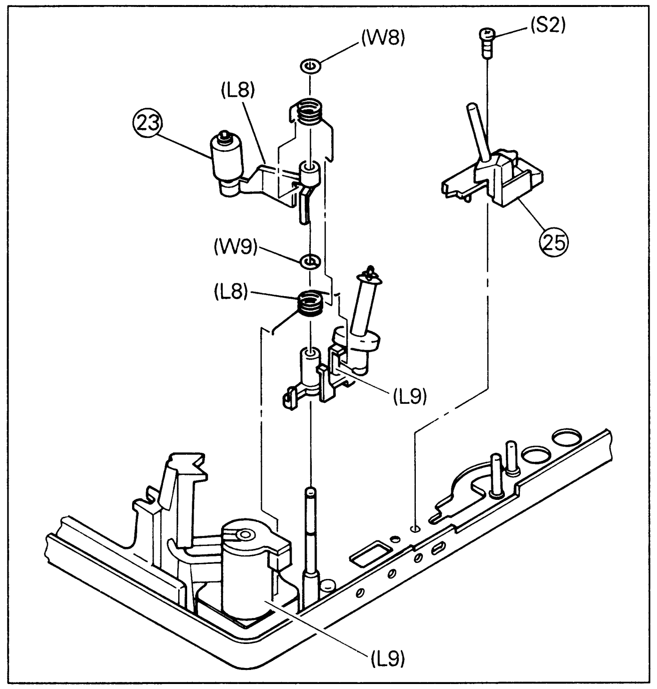
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Fig. M9

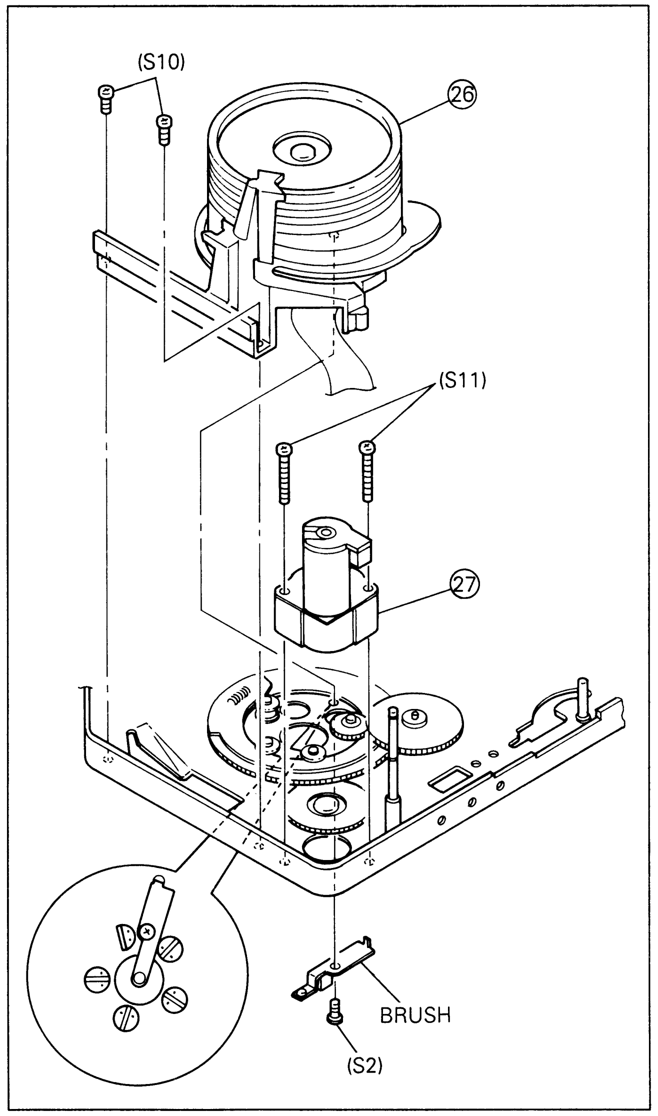
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Fig. M10

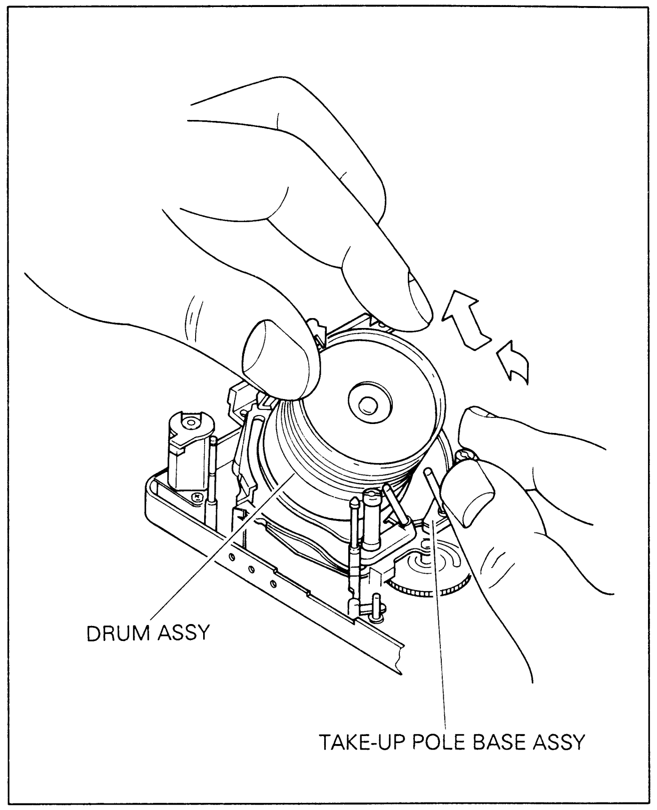
DRUM ASSY
TAKE-UP POLE BASE ASSY

Fig. M11

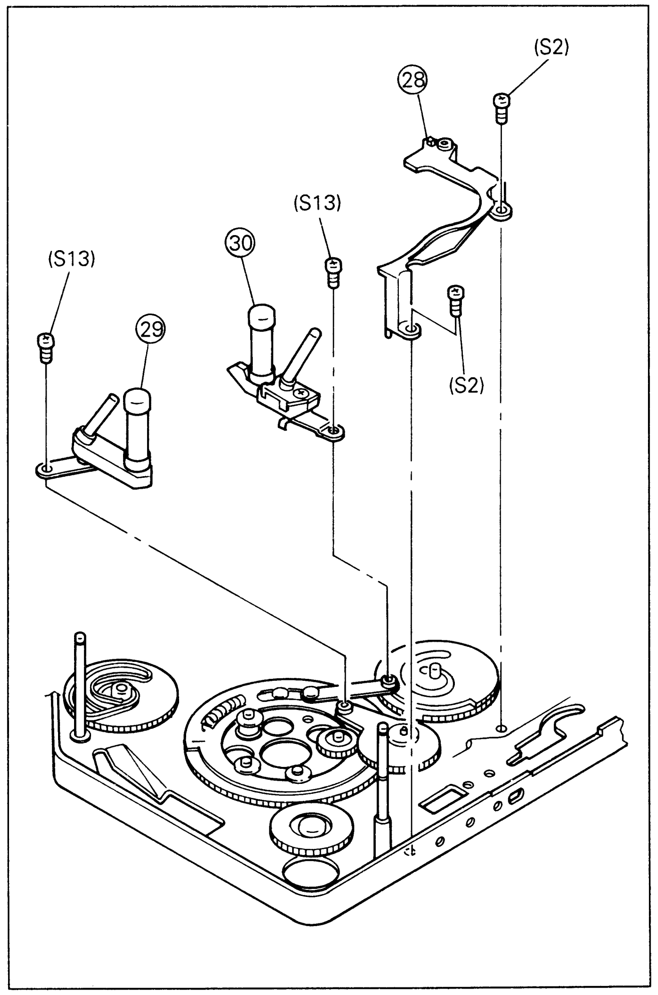
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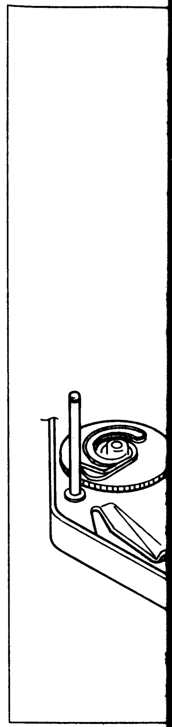
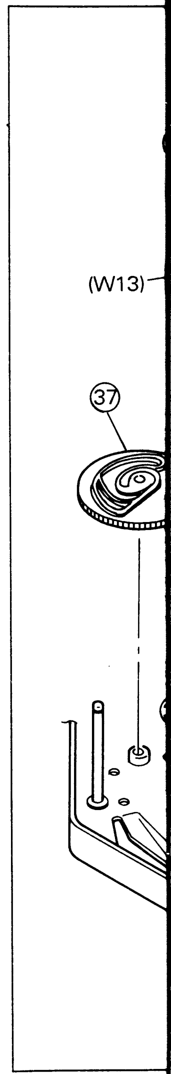
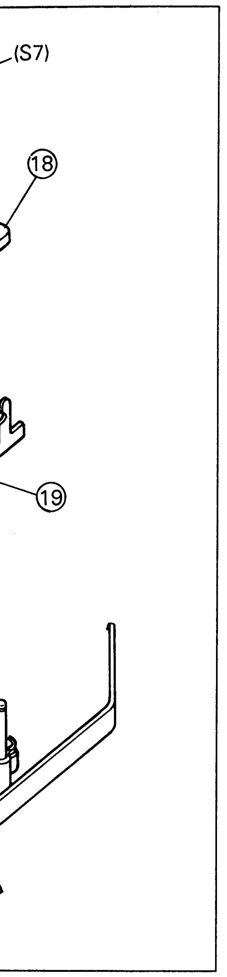
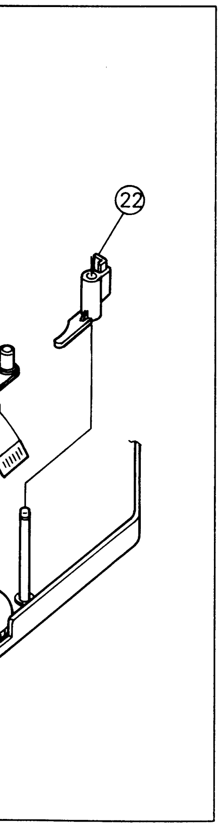
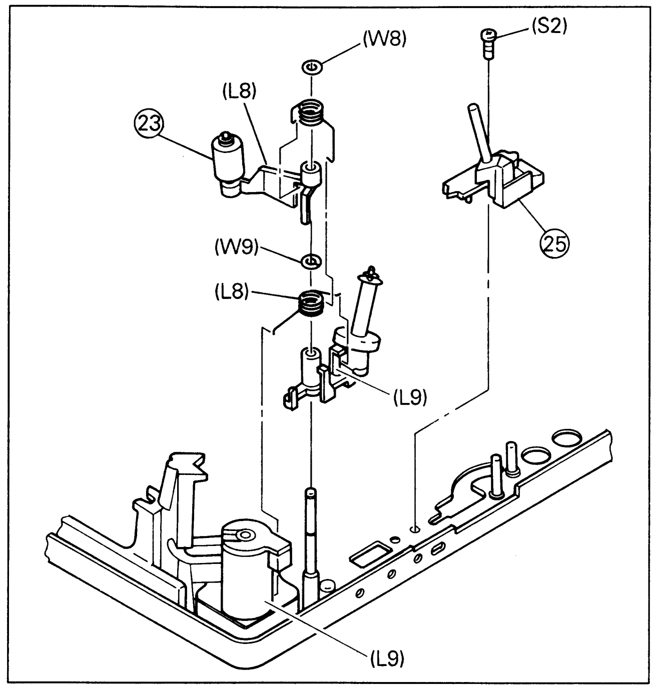
Fig. M12










(W8)
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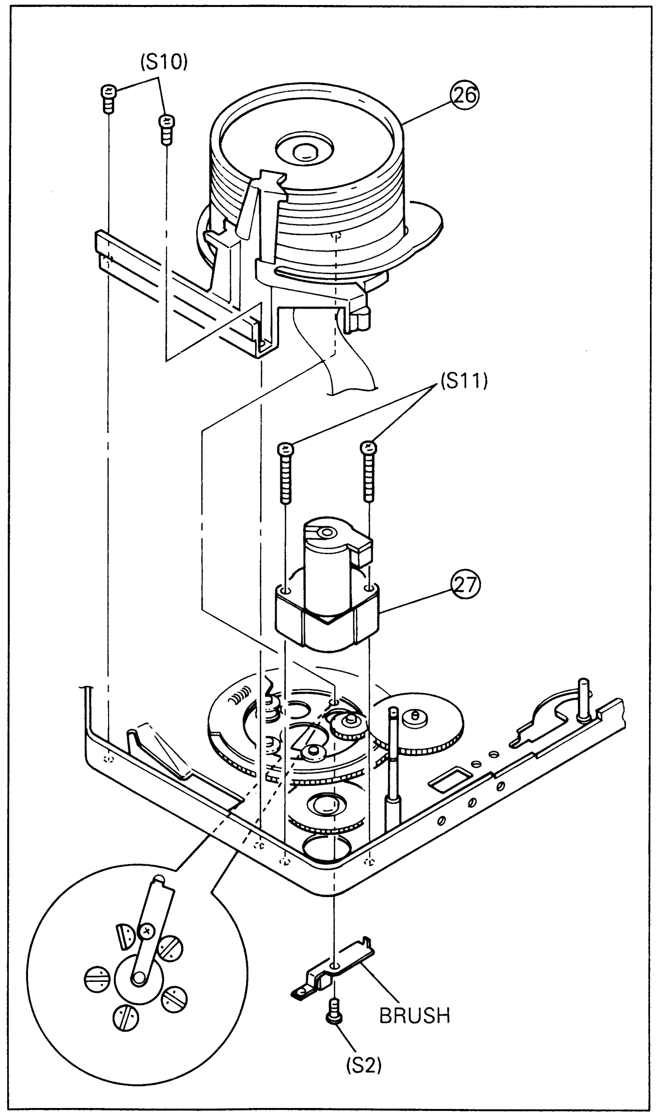
(L9)

Fig. M9


(S10)
㉖
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BRUSH
(S2)

Fig. M10

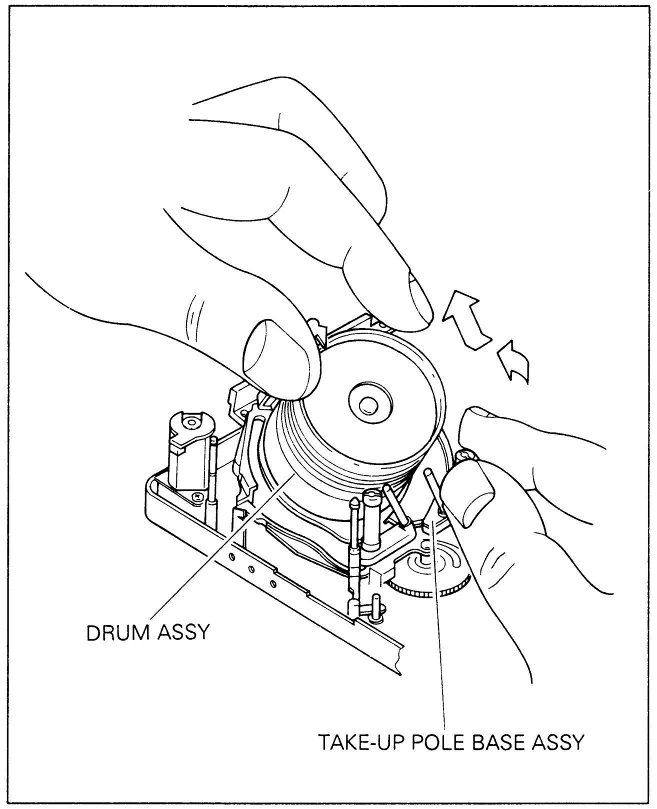
DRUM ASSY
TAKE-UP POLE BASE ASSY

Fig. M11

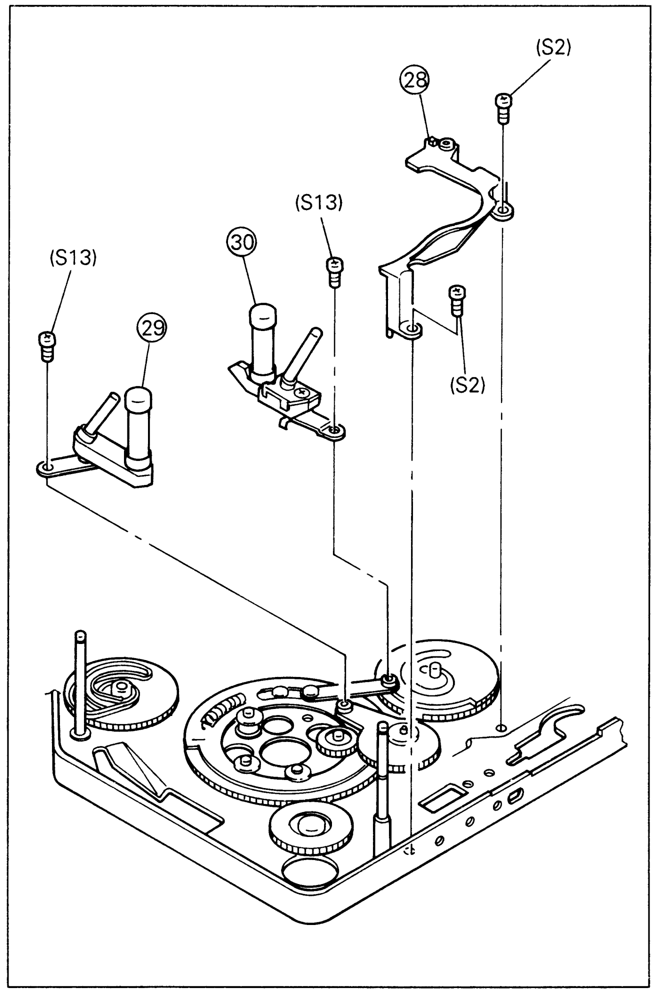
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Fig. M12

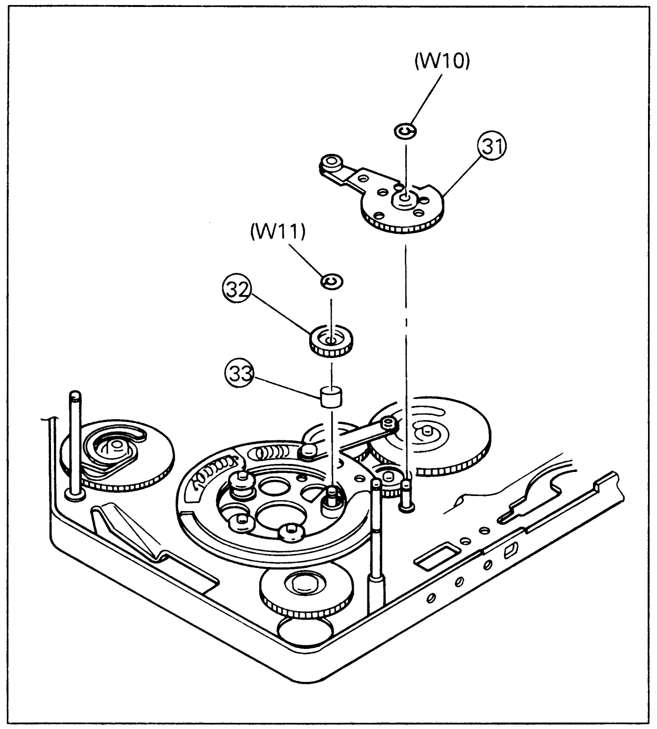

Fig. M13

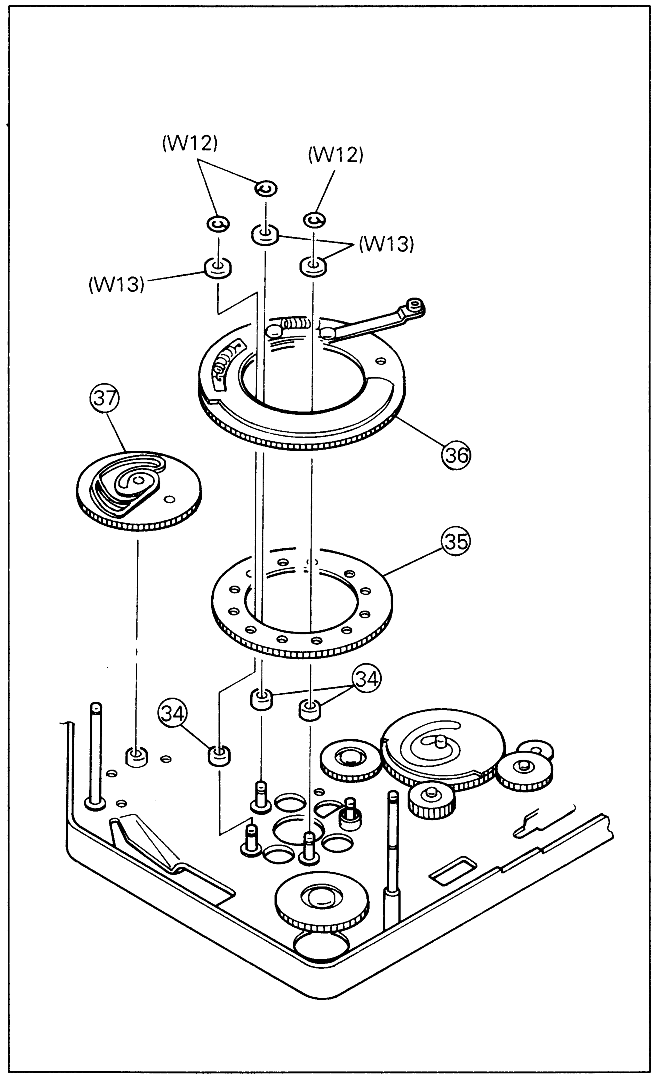
(W12)
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Fig. M14

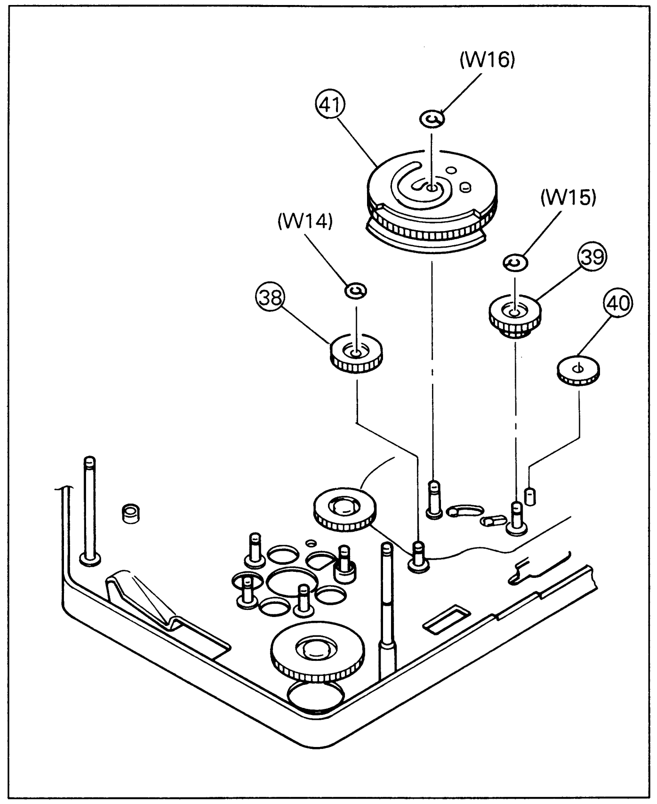
(W16)
㊶
(W14)
(W15)
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Fig. M15

Reference Notes:

<NOTE 1>

Destination of connectors

Note: three kinds of double-arrows in connection tables respectively show kinds of connector/wires.

- ⬌ : Board to Board connector
- ⇔ : Flat wire
- ↔ : Wire

Connector	No. of Pins	Connector
Ⓐ	2	MODE CTL MOTOR ↔ SENSOR CN2
Ⓑ	2	A/C head ↔ DEW, SENSOR

<NOTE 2>

For removing the drum assy, hold the drum assy and the take-up pole base assy while sliding the drum assy in the direction of the arrow so as to slide the take-up pole base assy off the drum assy take-up guide rail.

<NOTE 3>

See, Adjustment procedure for TAPE INTERCHANGEABILITY ADJUSTMENT Item 1-11.

1.6 REPLACEMENT OF CASSETTE HOUSING

1. After detaching the cassette cover, rear cover, operation unit and upper case, move the lock plate in the direction of the arrow ⓐ to set the cassette housing to the EJECT mode.
2. Remove four screws Ⓐ.
3. Move the cassette housing.

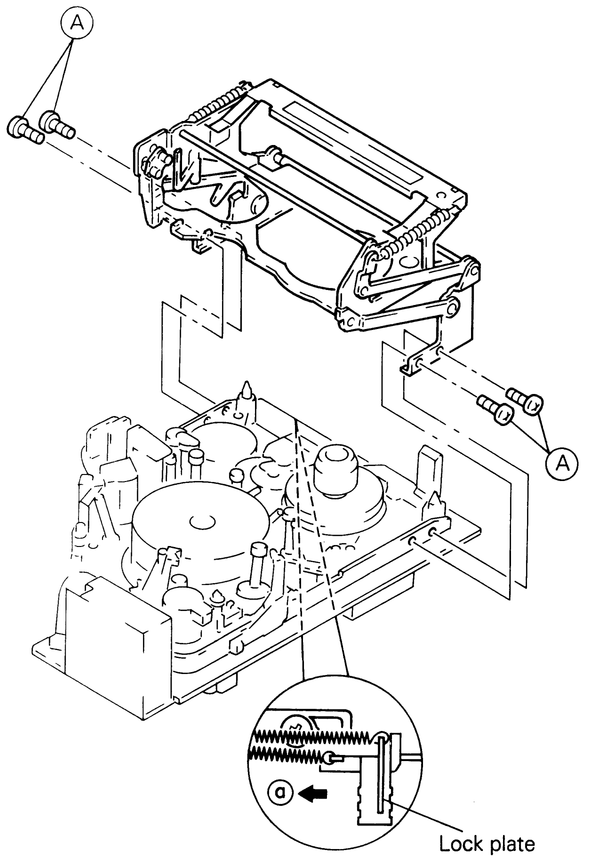

Fig. 1-6-1 CASSETTE HOUSING

1.7 TO TAKE OUT CASSETTE TAPE

When the deck enters the Emergency mode with cassette tape loaded and it cannot be ejected by pressing the EJECT button, take out of the cassette housing according to the following procedure.

1. Disconnect the deck from the power source and remove the cassette cover, rear cover, operation unit and upper case.
2. Remove wires of the mode control motor as shown in the magnified view Ⓐ and connect jumping wires to the terminals.
3. Holding the cassette housing by hand, connect the jumping wires to battery and set the mechanism for Unloading as it is in the Eject mode. In the condition, turn the take-up gear (see the magnified view Ⓑ) in the direction of the arrow a (toward the drum) to wind the tape. Checking up whether the tape is damaged or not, stop holding of the cassette housing by hand.

Note: If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.

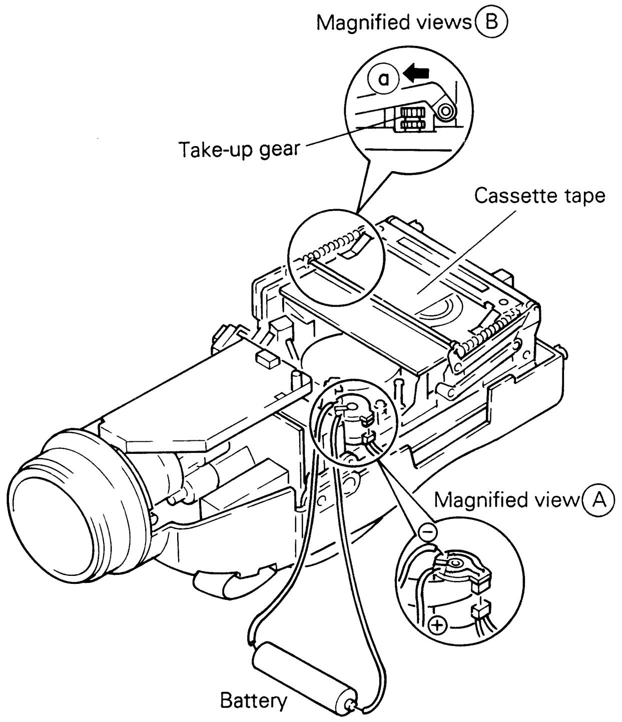

Fig. 1-7-1 CASSETTE TAPE

1.8 REPLACEMENT OF CCD IMAGE SENSOR

Note:

- **Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with fingerprints, ets., gently clean it with silicon-processed paper/cloth or chamois.**
- **When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.**

1.8.1 Removal of CCD image sensor

1. Remove two screws Ⓐ securing the CCD base, and disassemble the optical LPF holder, the optical LPF, spacer rubber, and CCD image sensor from the CCD base.

1.8.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the spacer rubber, optical filter, filter holder on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item referring to the following table (see Fig. 1-8-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the right and top viewed as indicated by the arrow ⓐ.

2. Then, place the imager holder on the top of the optical LPF holder.
3. Fix the CCD base to OP block with the two screws Ⓐ. At that time, be careful of the orientation.
4. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

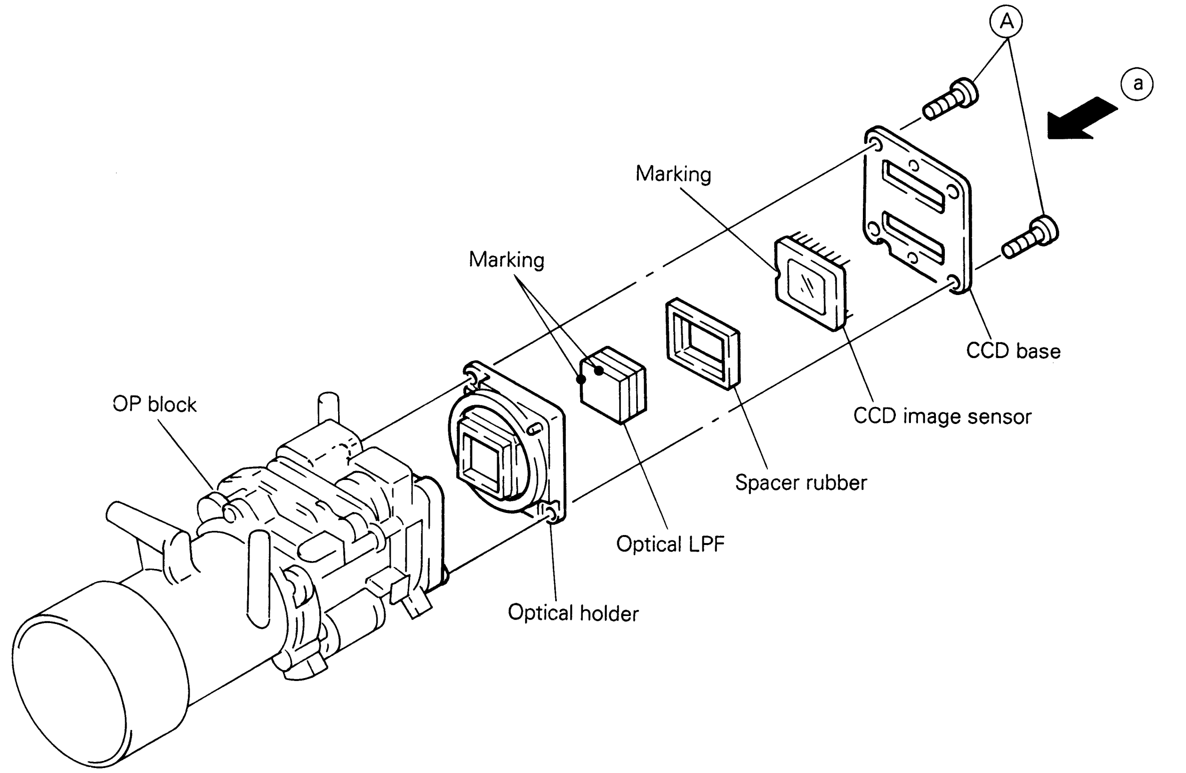

Fig. 1-8-1 CCD image sensor

1.9 REPLACE

Note: Be very ca
drum as w

1.9.1 Remova

1. Carefully unso
UPPER DRUM
Note: If solde
damage
remove

Fig. 1-9-

2. Remove two
direction of th

Fig. 1-9-

3. When it is har
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to remove it e

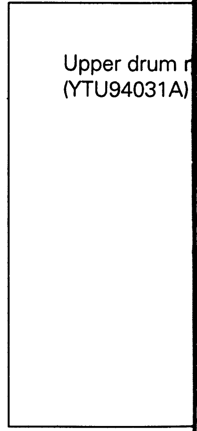

Fig. 1-9-

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according to the

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or as shown in the
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for Unloading as it
n the take-up gear
ction of the arrow
ecking up whether
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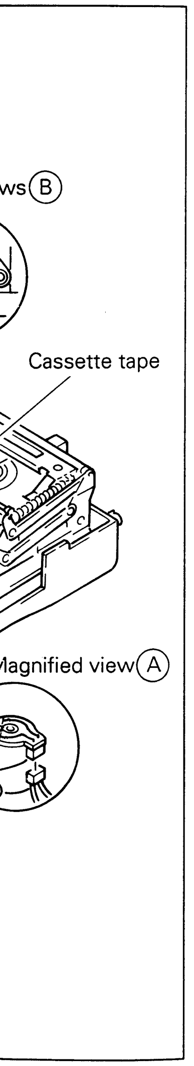
loading mode as
, it results in tape



PE

1.8 REPLACEMENT OF CCD IMAGE SENSOR

Note:

- **Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with fingerprints, ets., gently clean it with silicon-processed paper/ cloth or chamois.**
- **When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just be fore assembling the CCD image sensor to the OP block.**

1.8.1 Removal of CCD image sensor

1. Remove two screws Ⓐ securing the CCD base, and disassemble the optical LPF holder, the optical LPF, spacer rubber, and CCD image sensor from the CCD base.

1.8.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the spacer rubber, optical filter, filter holder on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item referring to the following table (see Fig. 1-8-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the right and top viewed as indicated by the arrow ⓐ.

2. Then, place the imager holder on the top of the optical LPF holder.
3. Fix the CCD base to OP block with the two screws Ⓐ. At that time, be careful of the orientation.
4. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

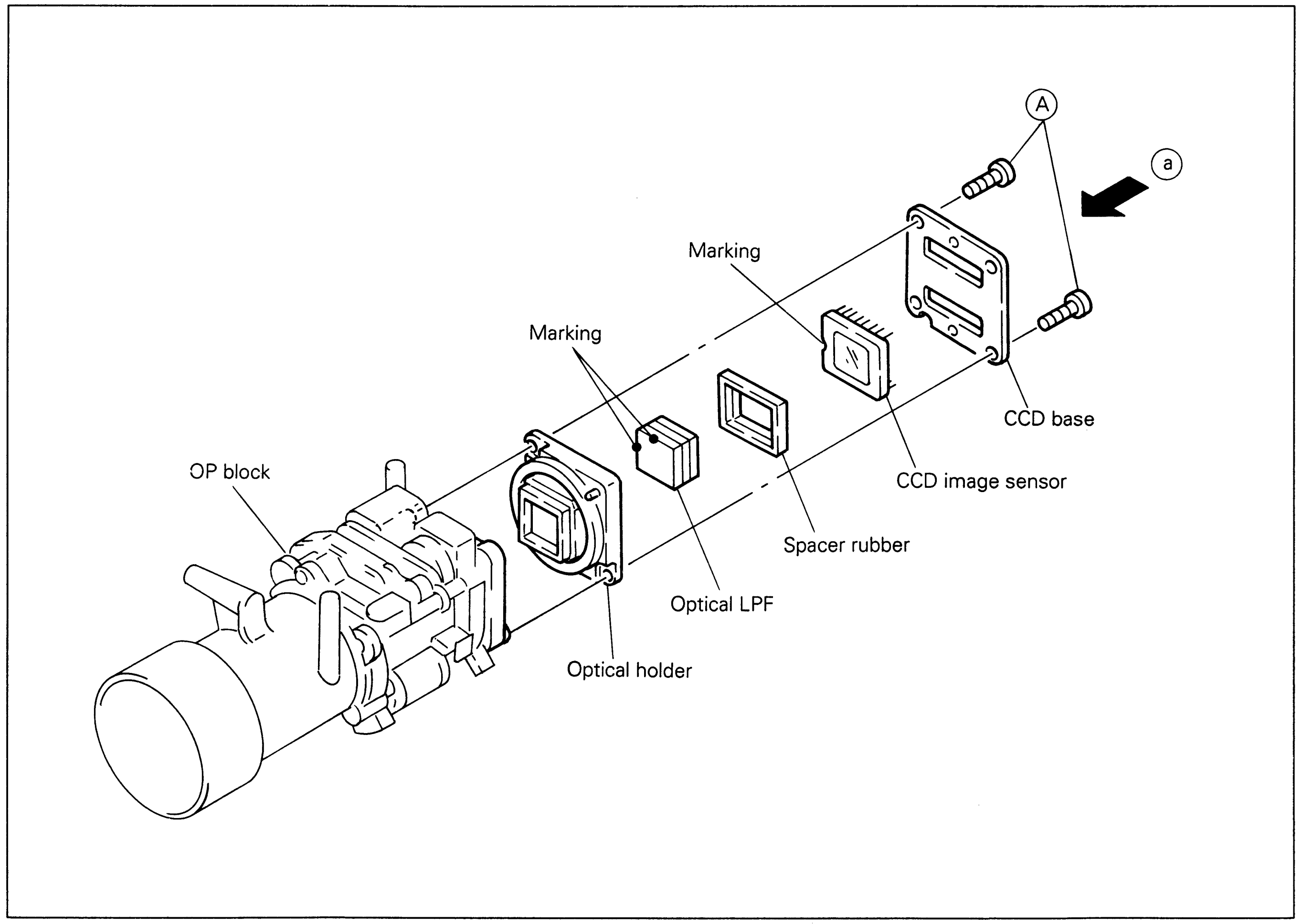


Fig. 1-8-1 CCD image sensor

1.9 REPLACEMENT OF UPPER DRUM

Note: Be very careful not to touch any hand of a new upper drum as well as not to damage the drum.

1.9.1 Removal of upper drum

1. Carefully unsolder at 10 points shown in Fig. 1-9-1 on the UPPER DRUM board.

   Note: If solder is not completely removed, it may cause damage of the head pins when the upper drum is removed.

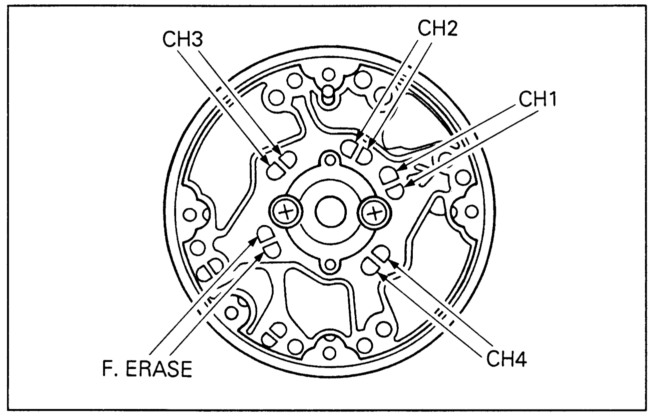


Fig. 1-9-1 Upper drum replacement (1)

2. Remove two screws and draw out the upper drum in the direction of the arrow.

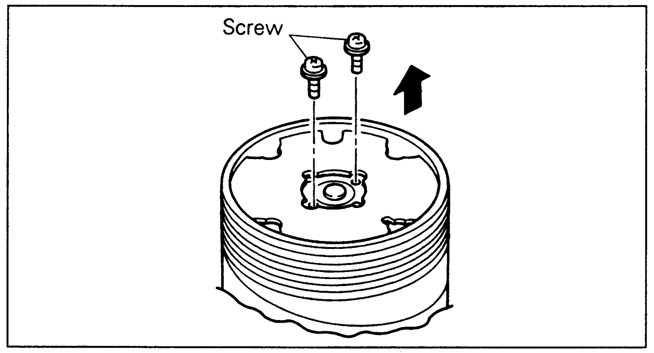


Fig. 1-9-2 Upper drum replacement (2)

3. When it is hard to remove the upper drum, set the upper drum removal tool (YTU94031A) with the screws which are once removed in the step 2, and tighten the center screw to remove it easily.

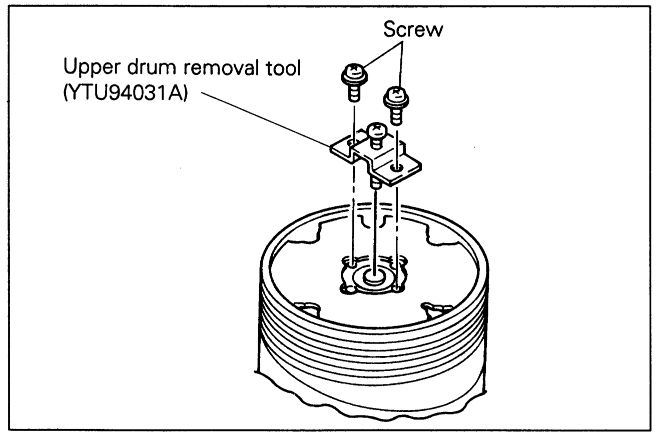


Fig. 1-9-3 Upper drum replacement (3)

1.9.2 Installation of new upper drum

1. Before installing a new upper drum, insert a soldering iron (50 W) into the hole of the upper drum and heat it for about 3 to 5 minutes to expand it.

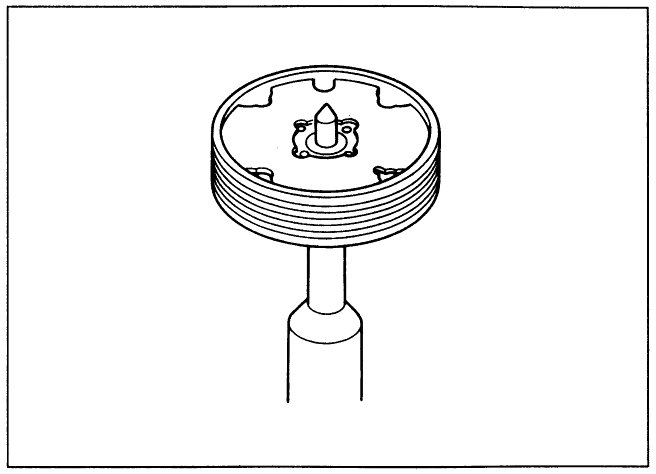


Fig. 1-9-4 Upper drum replacement (4)

2. Install the new upper drum so that its arrow marking is positioned at an angle of 140° to the rotary transformer's mold (having no relay pin) of the lower drum.

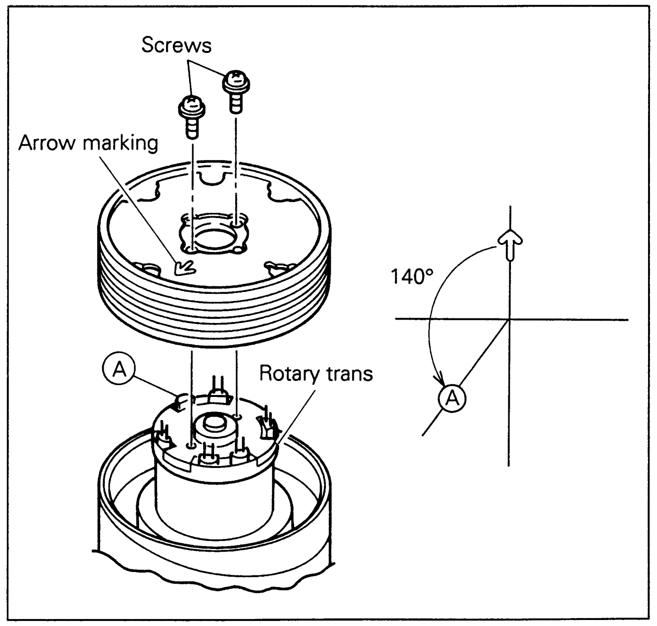


Fig. 1-9-5 Upper drum replacement (5)

3. Tighten the screws lightly first, then, alternately tighten them gradually as the upper drum is cooled.
4. After replacement finishes, make sure to check up and deck section adjust.

1.10 CHECHUP AND ADJUSTMENT OF MECHANISM PHASE

Note: Pay careful attention to the installing order and phase of mechanism parts of the loading system.

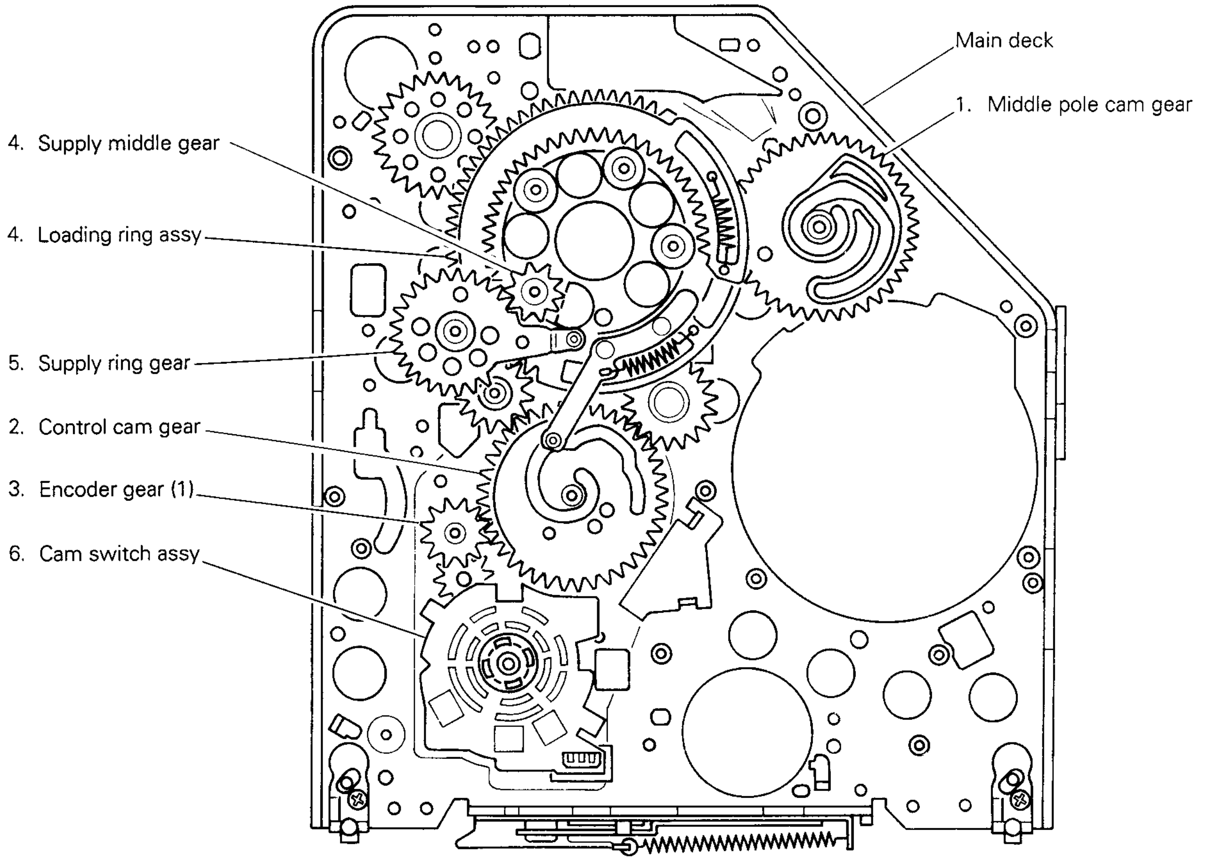

Main deck
1. Middle pole cam gear
4. Supply middle gear
4. Loading ring assy
5. Supply ring gear
2. Control cam gear
3. Encoder gear (1)
6. Cam switch assy

Fig. 1-10-1 Phase adjustment of loading system

1. Middle pole cam gear
   Position the middle pole cam gear so that its adjusting hole and the hole of the main deck coincide with each other.

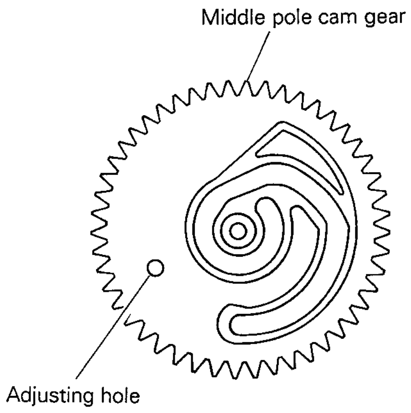

Middle pole cam gear
Adjusting hole

Fig. 1-10-2 Middle pole cam gear

2. Control cam gear
   Position the control cam gear so that its adjusting hole and hole of the main deck coincide with each other.

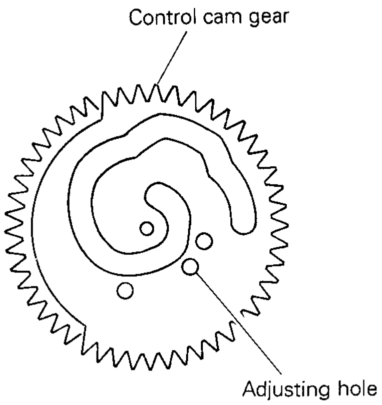

Control cam gear
Adjusting hole

Fig. 1-10-3 Control cam gear

3. Encoder gear (1)
   Engage the encoder gear (1) with the control cam gear so that the marking of the encoder gear(1) is positioned in the line between the axes of the encoder gear (1) and the control cam gear.

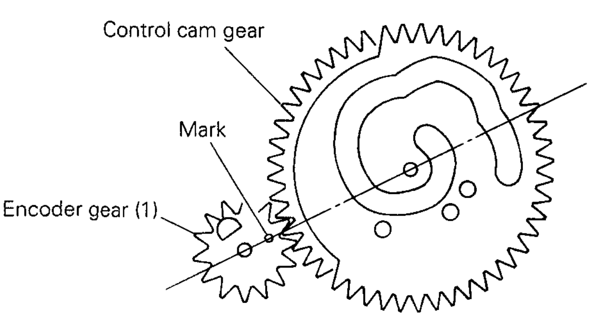

Control cam gear
Mark
Encoder gear (1)

Fig. 1-10-4 Encoder gear (1)

4. Loading ring assembly, supply middle gear
   Engage the supply middle gear with the loading ring assembly so that two teeth of the supply middle gear and the internal first two teeth of the loading ring assy are gearing with each other.

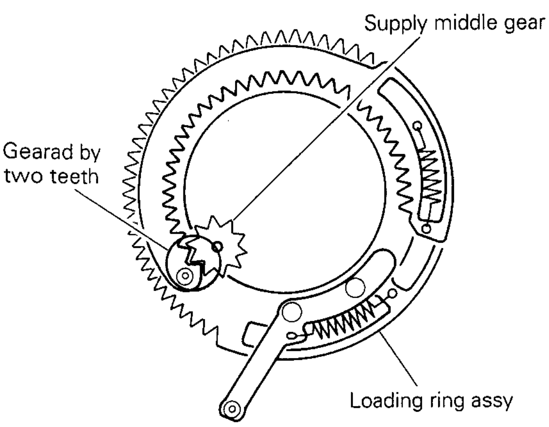

Supply middle gear
Gearad by
two teeth
Loading ring assy

Fig. 1-10-5 Loading ring assy, supply middle gear

5. Supply ring gear
   Engage the supply ring gear so that its hole coincides with that of the loading ring assy.

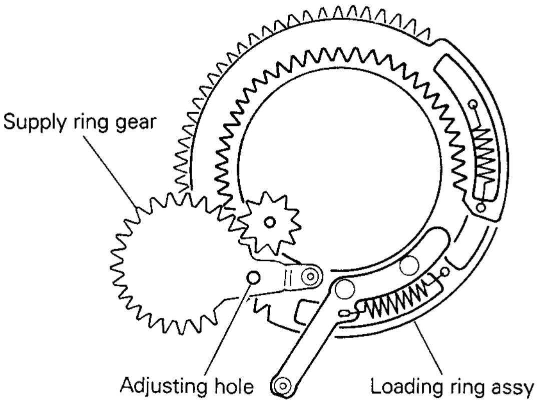

Supply ring gear
Adjusting hole
Loading ring assy

Fig. 1-10-6 Supply ring gear

6. Cam switch assembly
   Set the cam switch assy so that the notch of its gear teeth coincides with both the rectangle hole Ⓐ and the hole of the main deck.

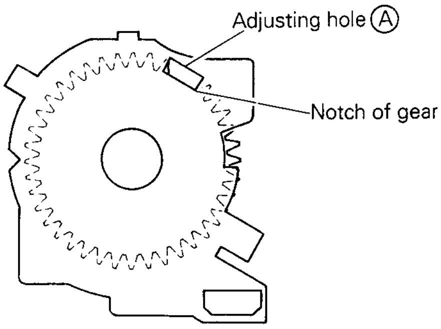

Adjusting hole Ⓐ
Notch of gear

Fig. 1-10-7 Cam switch assy

After completion of the above steps 1 through 6, make sure to confirm that respective phases are correct.

1.11 TAPE INTERCHANGEABILITY ADJUSTMENT

In most cases the deck section is in need of mechanical adjustment, it results from replacement of worm mechanical parts or video heads.
In the event of malfunction with mechanical section, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1.11.1 Required adjustment tools

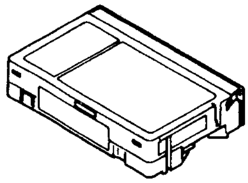
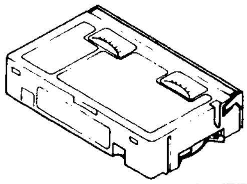
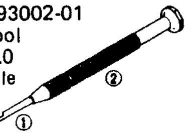
Alignment tape for SP interchangeability (MHPE-C or MH-C2)	Cassette torque meter PUJ50431-2
	
A/C head positioning tool YTU93002A (incl. ① & ②)	
① YTU93002-01 Bit tool ② PD-3.0 Handle  Orders for ① & ② can be placed separately.	

Table 1-11-1

1.11.2 Back tension

1. Set a cassette torque meter onto the deck and measure the back tension in the standard REC mode to confirm that the back tension is 13 – 22 gr-cm.
2. If not, replace the tension band.
   When the value widely fluctuates in the measurement, replace the supply reel disk.
3. With the cassette torque meter, confirm that the play torque is 20 – 35 gr-cm.
   If necessary, replace the take-up clutch gear.

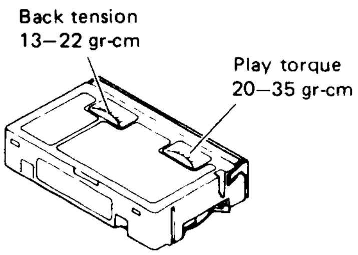


Fig. 1-11-1 Cassette torque meter

1.11.3 Tape pattern

1. Observe signal at CN20 pin 1 (V TP FM) with external trigger from CN20 pin 7 (V. SW-A).
2. Play back the SP stairstep signal of the alignment tape, and maximize the FM waveform by the tracking button.
3. If the observed FM waveform is not flat, adjust the height of the supply or take-up guide roller with an ordinary screwdriver (–).

   Note: Slowly turn the guide roller to prevent the tape and drum from damage.
4. By operating the tracking button (both in + and – directions) in the manual tracking mode, vary the output lvel of the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape.
5. When the FM waveform breaks in the level varying process, subtly adjust the height of guide rollers at every breaking point so that the wavefrom varies as flat as possible.
   Repeat the above steps 4. and 5. several times to confirm that the waveform is flat as a whole.
6. Set for Stop mode and then for playback mode again, since the height of guide rollers may move during adjustment.
   While varying the Tracking control, confirm that FM waveform variation is always flat.
7. Record the signal and play it back in the SP mode, and confirm that the FM waveform is flat.
   Note: If there is FM falling at the supply side during self-recording and playback, recheck Back tension first.
   When Back tension is normal, replay stairstep signal of the alignment tape and perform fine-adjustment of the supply guide pole height to obtain flat FM waveform.
   After obtaining flat FM waveform, turn the supply guide pole counterclockwise by 90 degrees in order to obtain well-balanced FM waveforms between self-recording and alignment tape playback.

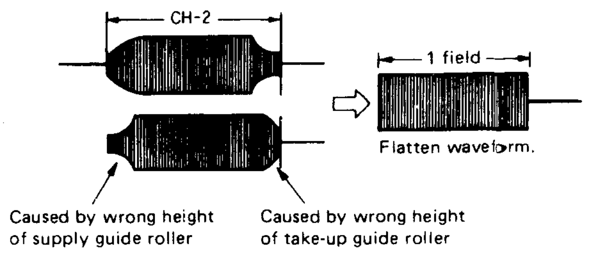

CH-2
1 field
Flatten waveform.
Caused by wrong height of supply guide roller
Caused by wrong height of take-up guide roller

Fig. 1-11-2 FM waveform-1

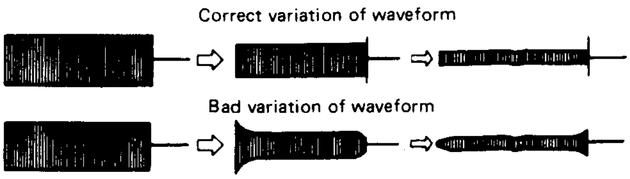


Fig. 1-11-3 FM waveform-2

8. Through the above steps, confirm that there occur no wrinkling and damage in the tape around the impedance roller and TU side guide pole whenever the deck is in operation of Loading/Unloading, Search Rewind, and at mode change from Search Rewind to Play mode.
   If wrinkling or damage in the tape occurs around the TU guide pole, adjust the angle (slant) of the A/C head to the tape so that the tape normally runs along the lower flange of the guide pole.

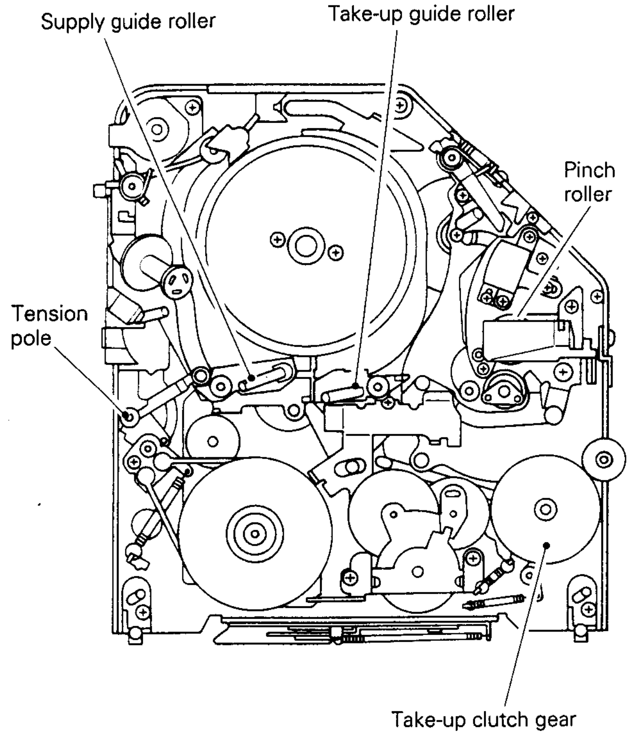

Supply guide roller
Take-up guide roller
Pinch roller
Tension pole
Take-up clutch gear

Fig. 1-11-4 Tape transport system

1.11.4 A/CTL head height & azimuth

1. Play back the SP 7 kHz segment of the alignment tape (MHPE-C or MH-C2) and observe waveform at TP403 (AUDIO OUT).

   Note: When the output level fluctuation is less than −2 dB, adjustment is not required.

2. If necessary, turn the screw Ⓐ (reference), Ⓑ (bent forward) and Ⓒ (azimuth) gradually (at an angle of 45° approx.) in the same direction to obtain the maximum output level.
3. As final fine adjustment, adjust the screw Ⓑ for minimum level fluctuation and the screw Ⓒ for maximum output level.

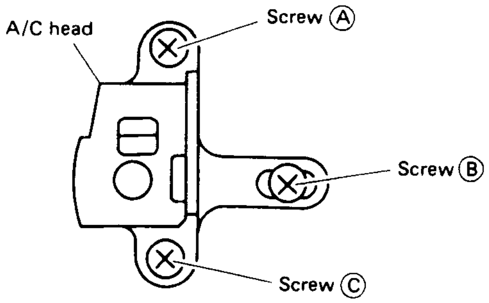

A/C head
Screw Ⓐ
Screw Ⓑ
Screw Ⓒ

Fig. 1-11-5 A/C head

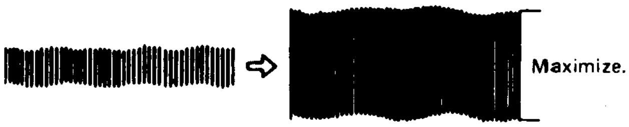


Fig. 1-11-6 Audio signal

1.11.5 Phase of control head (X value)

1. Play back the SP stairstep signal of the alignment tape (MHPE-C or MH-C2) and observe waveform at CN20 pin 7 (V. SW-A).
2. Operate the tracking button in the manual tracking mode and confirm that the FM output level is maximum at the center position of the tracking button as shown in Fig. 1-11-8.
3. If necessary, slightly loosen the setscrews Ⓓ and Ⓔ and insert the tip of the A/C head positioning tool into the notch and guide hole to move the A/C head fully in the direction of the capstan to the extent.
4. Gradually move the A/C head toward the drum to find the position where the FM output level maximum for the first time ('a – b' in Fig. 1-11-8).
5. Fine adjust the phase of the A/C head and tighten the setscrews Ⓓ and Ⓔ at the point c which is the midpoint between a and b.

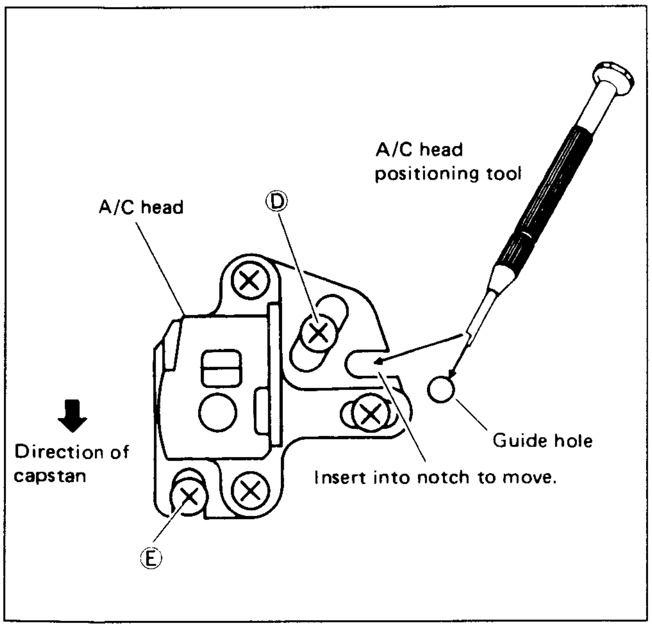


Fig. 1-11-7 Phase of control head

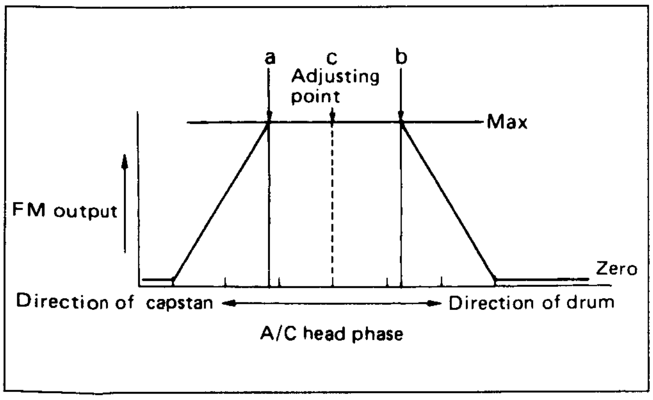


Fig. 1-11-8 Phase adjustment point of control head

1.12 REMARKS

1.12.1 Cleaning

1. For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe with alcohol soaks through. Do not move the cloth but turn the upper drum counterclockwise.

   Note: Make sure not to move the cloth in the vertical direction to the video head, since it may cause damage of the video heads.
2. For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3. After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

1.12.2 Applying oil and grease

1. Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the other parts of the other party are old and dirty, wipe them clean and apply new oil or grease.
2. For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3).
   Table 1-12-1 specifies oil and grease to be used.
3. When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Part No.	Symbol in drawing
Grease	Moriton Grease No. 1	MOS2-C	A
Oil	Cosmo Hydro HV100	YTU94027	B

Table 1-12-1 Specific oil and grease to be used

1.12.3 Checkup

After replacement of the supply reel disk and tension band, make sure to inspect.

2.1.5 Connection for adjustment

Disassembly the deck section from the other units, and connect it with test equipment as shown in Fig. 2-1-4.

Connector	No. of pins	Parts Number	Connection
①	4 ←→ 24	PEMCJ0813B-24T	Y/C Separator ←→ MAIN CN7

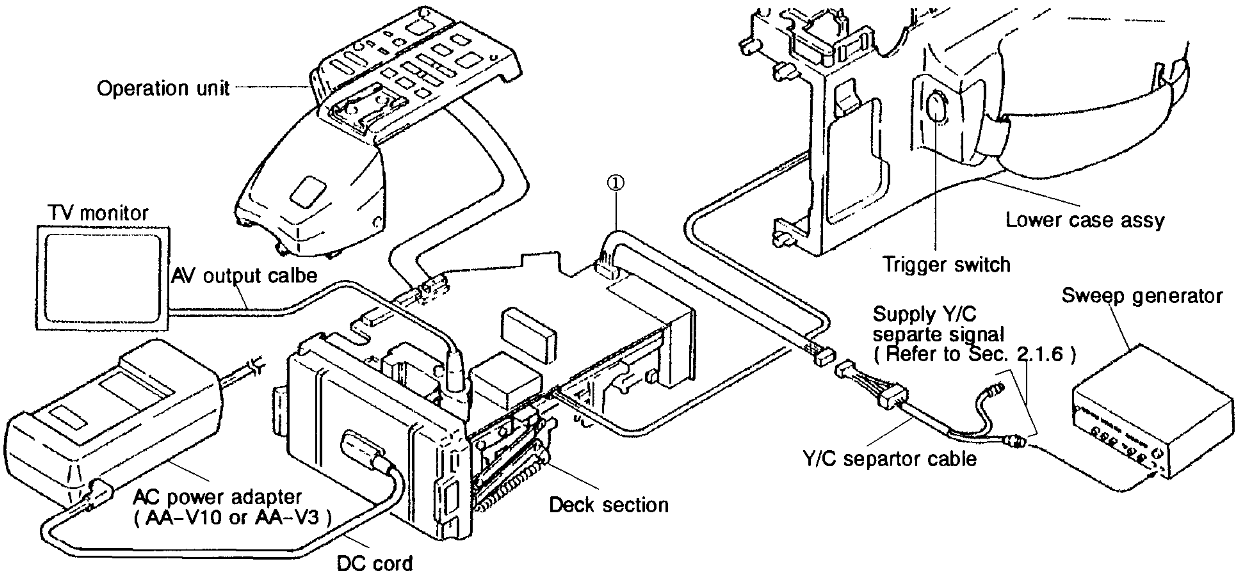

Operation unit
TV monitor
AV output calbe
①
Lower case assy
Trigger switch
Sweep generator
Supply Y/C separte signal (Refer to Sec. 2.1.6)
Y/C separtor cable
AC power adapter (AA-V10 or AA-V3)
Deck section
DC cord

Fig. 2-1-4 Standard setup for deck section adjustment

2.1.6 Y/C separate signal supply

Y/C separate signal can be supplied in these three explaine as shown in below.

1. Y/C signal supply from a Y/C separator fixture.

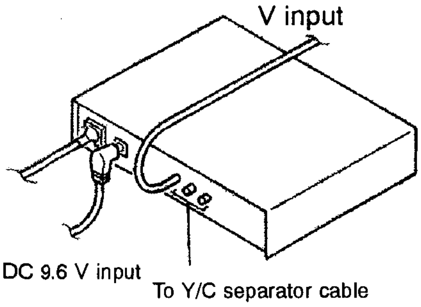

V input
DC 9.6 V input
To Y/C separator cable

Fig. 2-1-5 Y/C separator

2. Y/C signal supply from through S-VHS video recoder.

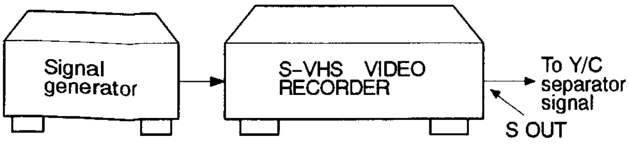

Signal generator
S-VHS VIDEO RECORDER
To Y/C separator signal
S OUT

Fig. 2-1-6 S-VHS video recoder

3. Y/C signal supply by direct separation of composite signal.

1) If such a cable as shown below is prepared, composite signal can be supplied to Y and C circuit.

Notes: · *For luminance (Y) signal circuit adjustment.*
There is no problem with using composite signal.
· *For colour (C) signal circuit.*
Picture noise appears in TV monitor, but there is no effect for the adjustment.

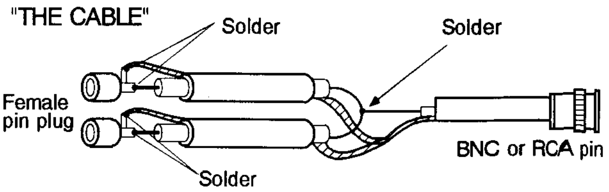

"THE CABLE"
Solder
Solder
Female pin plug
BNC or RCA pin
Solder

Fig. 2-1-7 Direct separation

SECTON 2
DECK SECTION ADJUSTMENT

2.1 PREPARATION

2.1.1 Precaution

In most cases the deck section is in need of electrical adjustment, it results from replacement of worn mechanical parts or video heads.
In the event of malfunction with electrical circuits, trouble-shooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between opration unit and DECK chassis.

2.1.2 Required test equlpment

1. Colour TV monitor.
2. AC power adapter (AA-V10 or AA-V3 and AA-V6 or equivalent).
3. Oscilloscope (Dual-trace type, for more than 20 MHz).
4. Audio level meter and audio signal generator.
5. Video signal generator.
6. Sweep generator.

2.1.3 Required adjustment tools

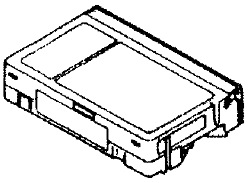
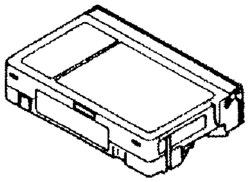
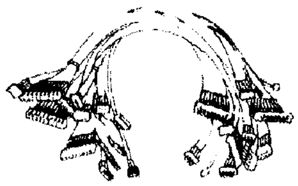
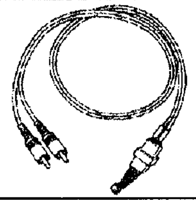
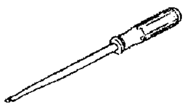
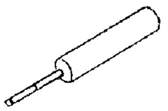
Alignment tape for SP interchangeability (MHPE-C or MH-C2)	Alignment tape for N.SP PB Y/C level (MHVE-2C or MH-C2)
	
Patch cords set YTU93059A	Y/C separator cable YTU93006
	
0.35 mm adjusting driver YTU94028	Ultramini VR adjusting driver YTU93036-2
	

Table 2-1-1

2.1.4 Colour bar signal, colour bar pattern and video sweep signal

- Colour bar signal

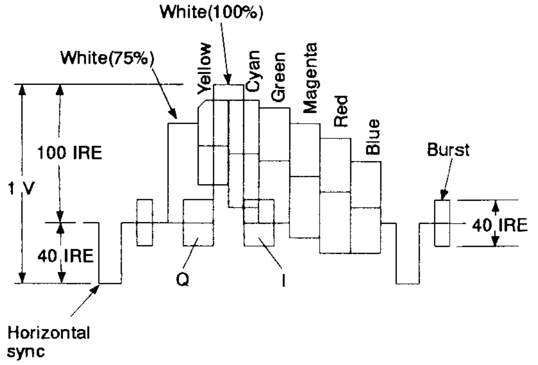

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
100 IRE
1 V
40 IRE
Q
I
Burst
40 IRE
Horizontal sync

Fig. 2-1-1 Colour bar signal waveform

- Colour bar pattern

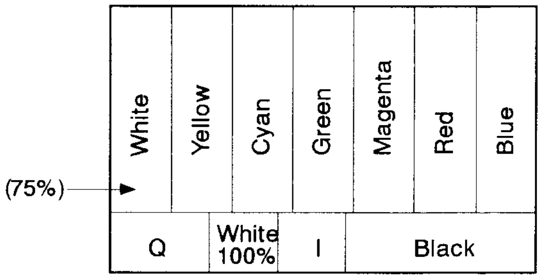

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 2-1-2 Colour bar pattern

- Video sweep signal

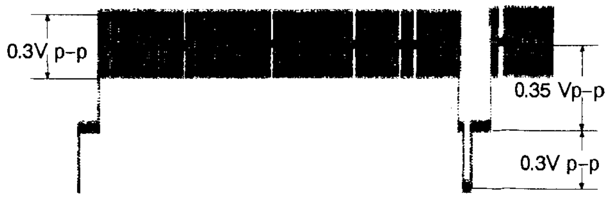

0.3V p-p
0.35 Vp-p
0.3V p-p

Fig. 2-1-3 Video sweep signal

2.2 SERVO CIRCUIT

Notes:
- *This adjustment most be preformed after the upper drum assembly or lower drum assembly is replaced.*
- *Unless otherwise specified, measurement points and adjustment parts are located on MAIN board.*

2.2.1 PB switching point

Signal	•Alignment tape [MHPE-C OR MH-C2] •SP stairstep
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•TP510 (VIDEO OUT)
EXT. trigger	•TP502 (DRUM FF)
Adjustment part	•R138 (PB SW POINT)
Specification	•6.5 ± 1 H

1) Observe waveform at TP510 with external trigger from TP502.
2) Adjust R138 so that the trigger point is 6.5 H before V. sync. signal.

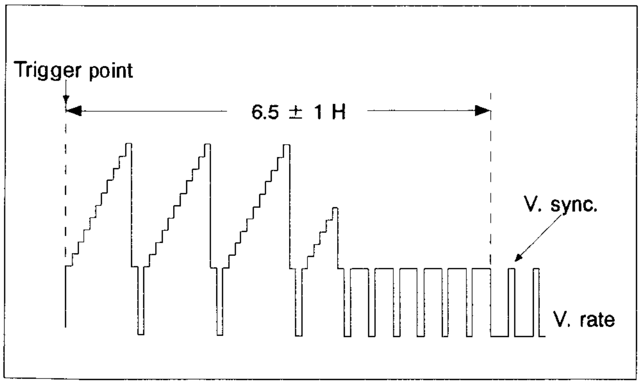


Fig. 2-2-1 PB switching point

2.3 VIDEO CIRCUIT

Notes:
- *This adjustment most be preformed after the upper drum assembly or lower drum assembly is replaced.*
- *Unless otherwise specified, all measurement points and adjustment parts are located on MAIN board.*

2.3.1 EE Y level

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP510 (VIDEO OUT)
Adjustment part	•R654 (EE Y LEVEL)
Specification	•2.0 ± 0.1 Vp-p

1) Connect an oscilloscope to TP510.
2) Adjust R654 so that Y signal level is 2.0 Vp-p.

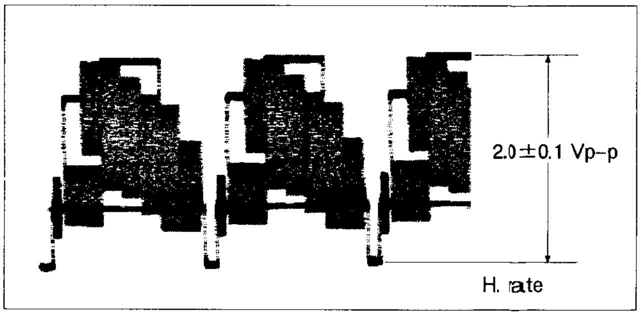


Fig. 2-3-1 EE Y level

2.3.2 PB Y LEVEL

Signal	•Alignment tape [MHVE-2C or MH-C2] •Colour bar
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•TP510 (VIDEO OUT)
Adjustment part	•R655 (PB Y LEVEL)
Specification	•2.0 ± 0.1 Vp-p

1) Connect an oscilloscope to TP510.
2) Adjust R655 so that Y signal level is 2.0 Vp-p.

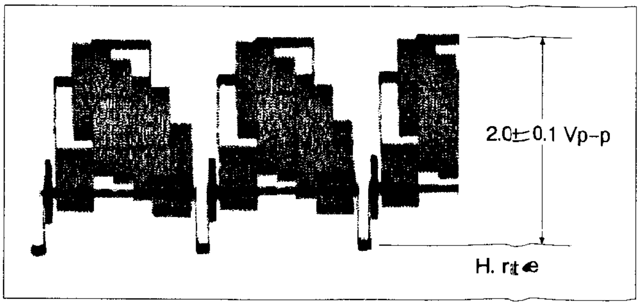


Fig. 2-3-2 PB Y LEVEL

2.3.3 YNR INPUT level

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP504 (YNR IN)
Adjustment part	•R656 (YNR INPUT LEVEL)
Specification	•Minimum

1) Connect an oscilloscope to TP504.
2) Adjust R656 to minimum DC step deference of the waveform at TP504.

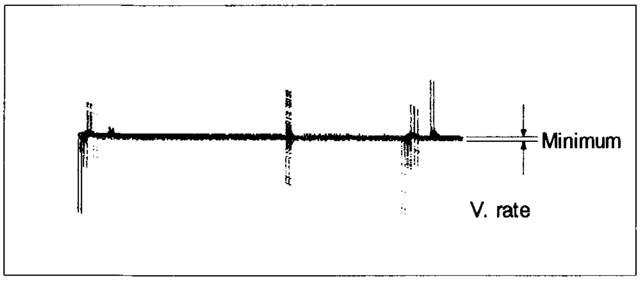


Fig. 2-3-3 YNR INPUT level

2.3.4 White clip

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP503 (EMPHASIS)
Adjustment part	•R651 (WHITE CLIP)
Specification	•90 ± 5 %

1) Connect an oscilloscope to TP503.
2) Adjust R651 so that white clip of TP503 signal is 90 %.

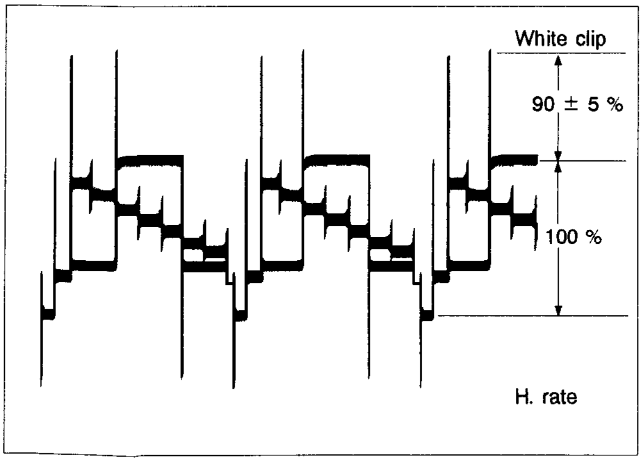


Fig. 2-3-4 White clip

2.3.5 Carrier/deviation

Notes: *This item should be adjusted only in the following situations.*

a)EE and PB systems are normal, but sync. is distorted (incorrect carrier setting) in playback of self-recoded signal.
b)White components are attenuated (wrong deviation).
c)In spite of recoding with input level of 2.0 Vp-p, output level is too small and S/N is very poor.

Signal	•No input signal
Mode	•REC •SP
Equipment	•Oscilloscope
Measurement point	•TP501 (REC FM)
Adjustment part	•R652 (CARRIER)
Specification	•3. 8 MHz ± 100 KHz

1) Connect a frequency counter to TP501.
2) Adjust R652 so that a frequency becomes 3. 8 MHz.

Signal	•Colour bar
Mode	•REC→PB •SP
Equipment	•Oscilloscope
Measurement point	•TP510 (VIDEO OUT)
Adjustment part	•R653 (DEVIATION)
Specification	•2.0 ± 0.1 Vp-p

3) Record the colour bar signal and then play the same portion.
Confirm that TP510 output level is 2.0 Vp-p.
4) IF it is out of the above specification, adjust R653 during recoding and repeat above step 3).

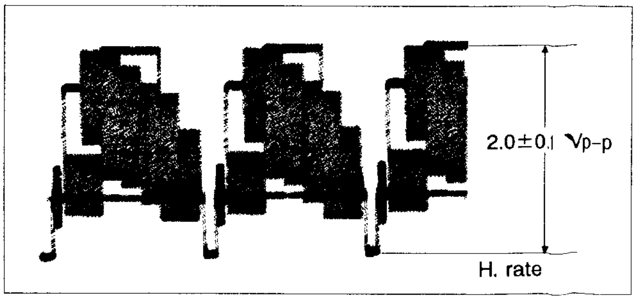


Fig. 2-3-5 Deviation

2.3.6 REC FM LEVEL

Signal	•Colour bar
Mode	•REC •SP
Equipment	•Oscilloscope
Measurement point	•TP1 (REC FM OUT) [PRE REC board]
Adjustment part	•R657 (REC FM LEVEL)
Specification	•2.6 ± 0.1 V 〔EG〕 •2.5 ± 0.1 V 〔EK〕

1) Connect an oscilloscope to TP1 of the PRE REC board.
2) Adjust R657 so that FM level of the pedestal portion is 2.6 Vp-p (EG) ／2.5 Vp-p (EK) .

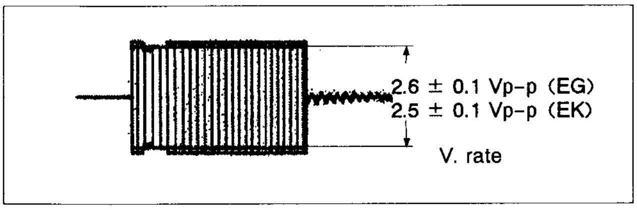


Fig. 2-3-6 REC FM level

2.3.7 VIDEO EQ

Note: *This item should be adjusted when playback of self-recording picture is not sharp (too low 2 MHz component) after replacement of the upper drum or when there is B/W reversal (too hight 2 MHz component).*

Signal	•Video sweep
Mode	•REC→PB •SP
Equipment	•Oscilloscope
Measurement point	•TP510 (VIDEO OUT)
Adjustment part	•R658 (VIDEO EQ)
Specification	•3.4 ± 0.2 scale

1) Connect an oscilloscope to TP510.
2) Record a video sweep signal in SP mode and play it back to observe waveform at TP510.
3) Set the 100 kHz marker of the video sweep signal for 4 scale divisions on the oscilloscope screen, and adjust R658 so that the 2 MHz marker is for 3.4 scale divisions.

Note: *After reassembling the deck and camera sections, record a high contrasty object in SP and LP (EK only) modes and play the recorded pictures respectively to confirm that there is no B/W reversal in the most contrasty part and the picture is colour and sharp on the whole.*

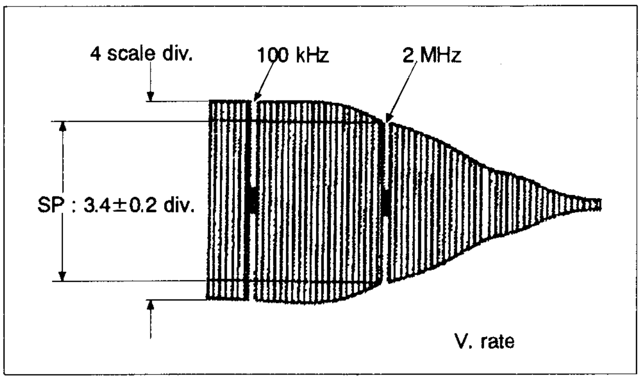


Fig. 2-3-7 VIDEO EQ

<Alternate method>

Signal	•Colour bar
Mode	•REC→PB •SP
Equipment	•TV monitor
Measurement point	•TV monitor screen
Adjustment part	•R658 (VIDEO EQ)
Specification	•Best resolution, without impaired S/N.

1)Record the colour bar signal in SP mode and play it back to observe the picture and adjust R658 for the best resolution, without impaired S/N.
2)So after adjustment, confirm black or white spot.

2.3.8 VCO

Signal	•Aligment tape [MHVE-2C or MH-C2] •Colour bar
Mode	•PB •SHUTTLE SEARCH
Equipment	•TV monitor
Measurement point	•TV monitor screen
Adjustment part	•R661 (VCO)
Specification	• The midpoint of two setting point

Note: *This item hardly becomes out of order and need not to adjust unless playback picture recorded by the same machine is not coloured.*

1) With a TV monitor to obseve the image, adjust R661 to set it to the midpoint of two setting point in SHUTTLE SEARCH mode: one where the image first decolourizes with R661 turned counterclockwise and the other where the image dose the same with the VR turned clockwise.

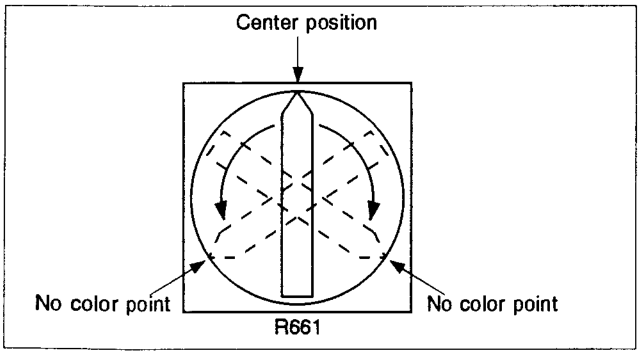


Fig. 2-3-8 VCO

2.3.9 REC colour level

Signal	•Colour bar
Mode	•REC→PB •SP
Equipment	•Oscilloscope
Measurement point	•TP507 (PB COLOUR)
EXT. trigger	•TP502 (DRUM FF)
Adjustment part	•R659 (REC COLOUR LEVEL)
Specification	•0.10 ± 0.02 Vp-p

1) Observe waveform at TP507 with external trigger from TP502.
2) Record colour bar signal in SP mode and play it back.
3) Adjust R659 so that the higher level of channels is 0.10 Vp-p.

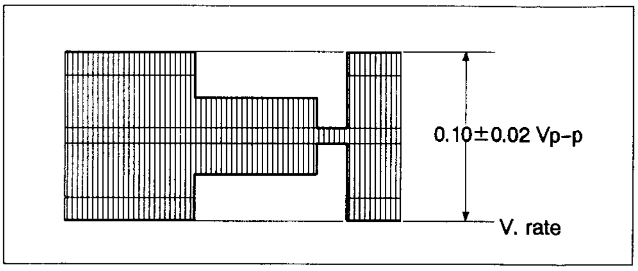


Fig. 2-3-9 REC colour level

2.4 AUDIO CIRCUIT

Note: *Unless otherwise specified, measurement points and adjustment parts are located on MAIN board.*

2.4.1 Bias level

Signal	•No input signal
Mode	•REC •SP
Equipment	•Audio level meter
Measurement point	•TP401 (BIAS[+]) •TP402 (BIAS[-])
Adjustment part	•R416 (BIAS LEVEL)
Specification	•2.8 ± 0.1 mVrms

1) Connect an audio level meter to respective ends of TP401 and TP402.
2) Adjust R416 to obtain -49 dBs (7.8 mVp-p, 2.8 mVrms) in SP REC mode.

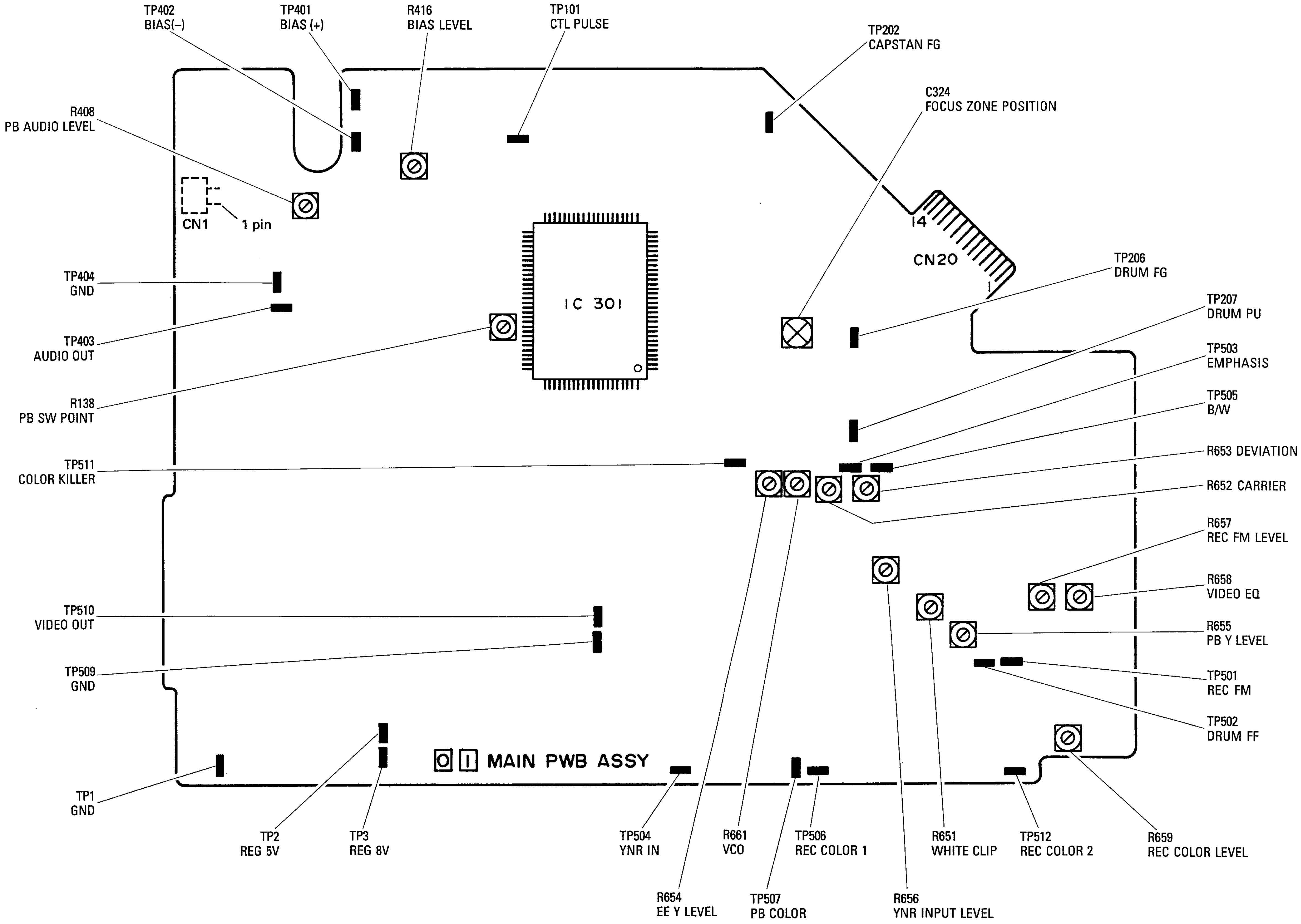
2.4.2 PB audio level

Signal	•Sine wave
Mode	•REC→PB •1 KHz •SP
Equipment	•Audio level meter
Measurement point	•TP403 (AUDIO OUT)
Adjustment part	•R408 (PB AUDIO LEVEL)
Specification	•-6 dBs (1.1 Vp-p, 0.39 Vrms)

1) Supply a sine wave of 1 KHz, -23 dBs(156 mVp-p, 55 mVrms) to pin 1 of CN1 with 1 00 K Ω resistor.
2) Adjust R408 in recording so that playback level becomes -6 dBs(1.1 Vp-p, 0.39 Vrms) in playback.

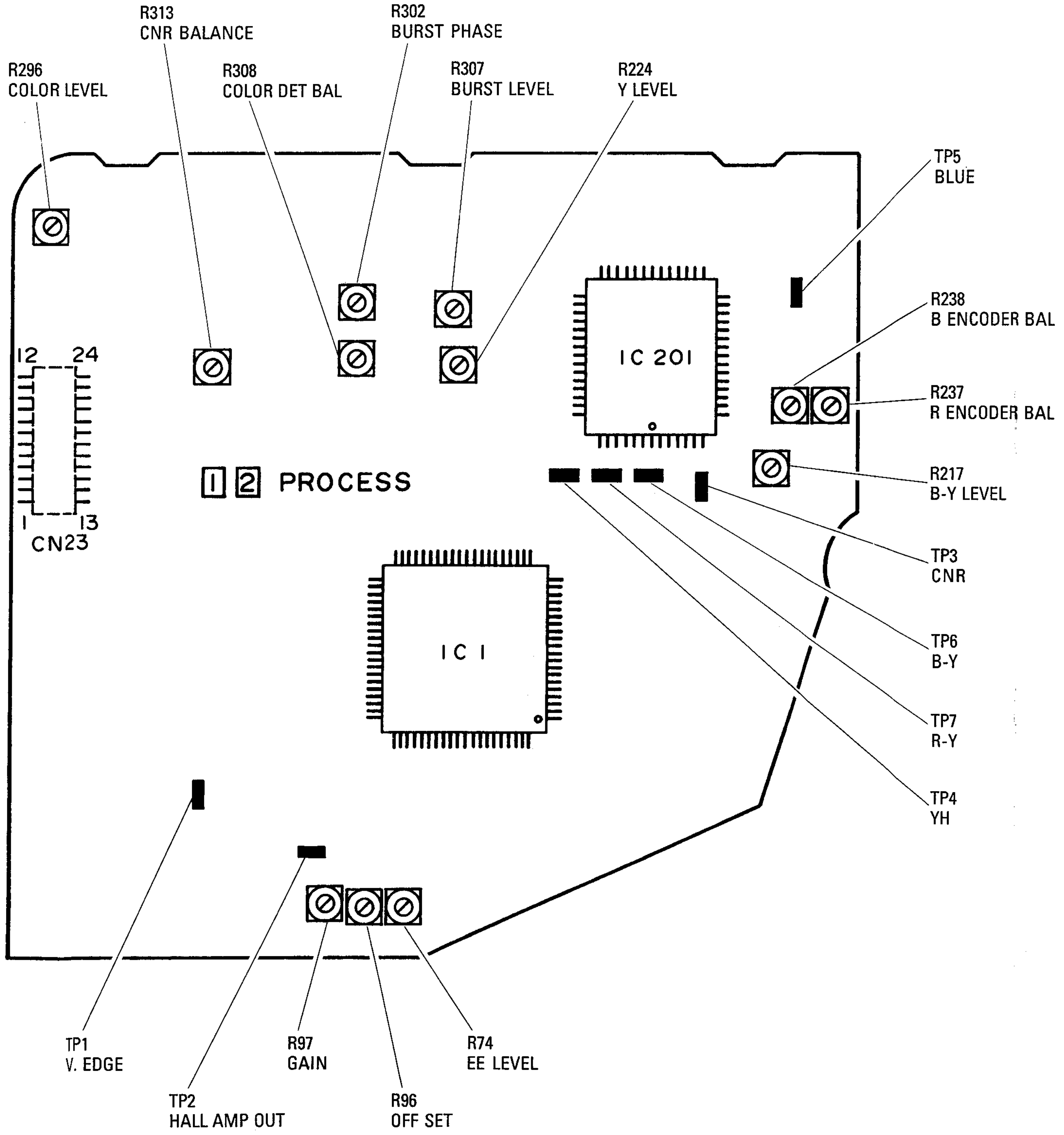
■ ADJUSTMENT ELEMENT LOCATION FOR DECK SECTION

— MAIN —

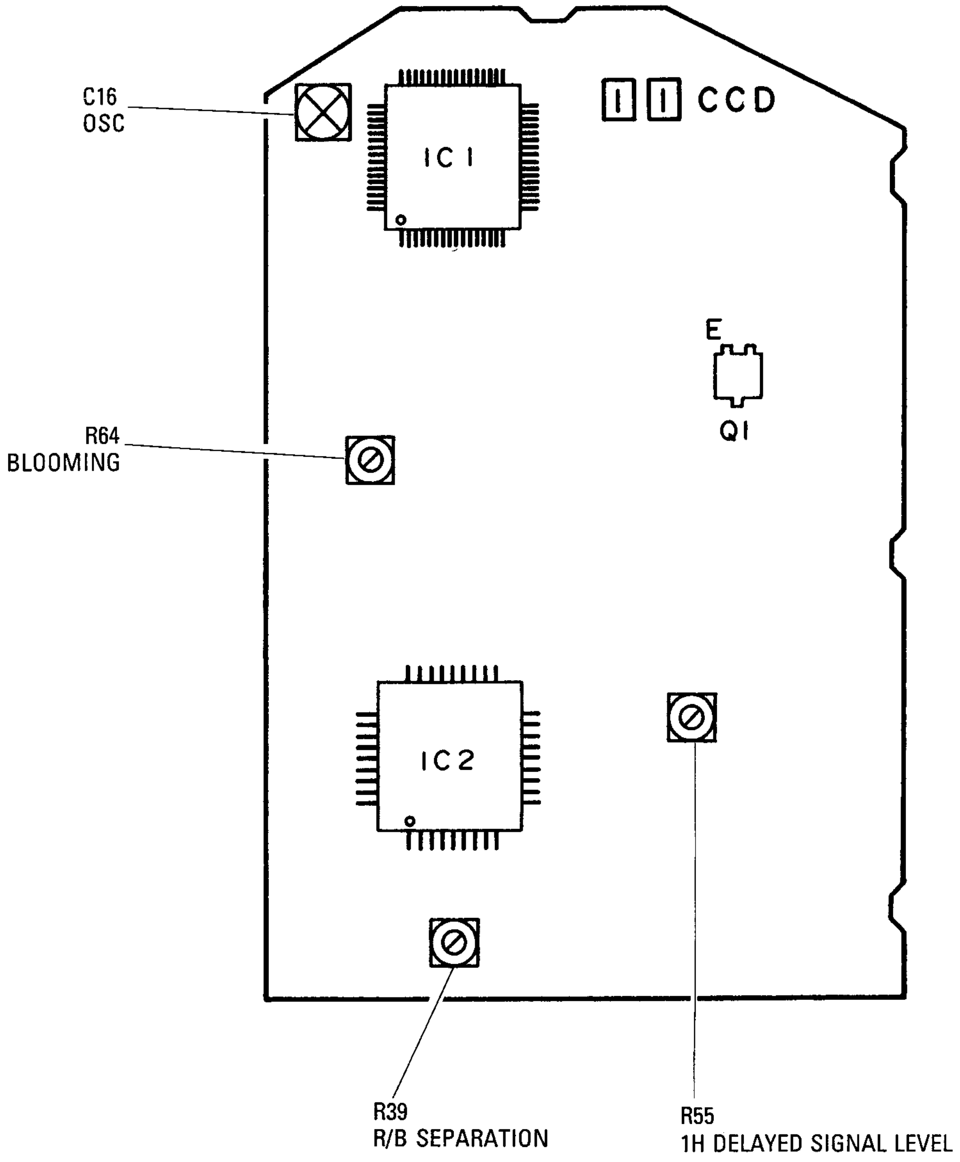

TP402
BIAS(–)
TP401
BIAS (+)
R416
BIAS LEVEL
TP101
CTL PULSE
TP202
CAPSTAN FG
C324
FOCUS ZONE POSITION
R408
PB AUDIO LEVEL
CN1
1 pin
14
CN20
1
IC 301
TP206
DRUM FG
TP207
DRUM PU
TP404
GND
TP403
AUDIO OUT
TP503
EMPHASIS
R138
PB SW POINT
TP505
B/W
R653 DEVIATION
TP511
COLOR KILLER
R652 CARRIER
R657
REC FM LEVEL
R658
VIDEO EQ
TP510
VIDEO OUT
R655
PB Y LEVEL
TP509
GND
TP501
REC FM
TP502
DRUM FF
0 1 MAIN PWB ASSY
TP1
GND
TP2
REG 5V
TP3
REG 8V
TP504
YNR IN
R661
VCO
TP506
REC COLOR 1
R651
WHITE CLIP
TP512
REC COLOR 2
R659
REC COLOR LEVEL
R654
EE Y LEVEL
TP507
PB COLOR
R656
YNR INPUT LEVEL

■ ADJUSTMENT ELEMENT LOCATION FOR CAMERA SECTION

— PROCESS —


R313
CNR BALANCE
R302
BURST PHASE
R296
COLOR LEVEL
R308
COLOR DET BAL
R307
BURST LEVEL
R224
Y LEVEL
TP5
BLUE
R238
B ENCODER BAL
R237
R ENCODER BAL
R217
B-Y LEVEL
TP3
CNR
TP6
B-Y
TP7
R-Y
TP4
YH
12
24
1
13
CN23
1 2 PROCESS
IC 201
IC 1
TP1
V. EDGE
TP2
HALL AMP OUT
R97
GAIN
R96
OFF SET
R74
EE LEVEL

— CCD —


C16
OSC
1 1 CCD
IC 1
E
Q1
R64
BLOOMING
IC2
R39
R/B SEPARATION
R55
1H DELAYED SIGNAL LEVEL

SECTON 3
CAMERA SECTION ADJUSTMENT

3.1 PREPARATION

3.1.1 Setup

1. Referring to Section 1,2 'DISASSEMBLY / ASSEMBLY OF CABINET PARTS', disassembly the main unit and make connections as shown in Fig. 3-1-1.

2. For adjustment, set the camera to the following operation mode unless otherwise indicated.
   - Rehersal mode
   - Standard shutter speed (1/60)
   - Manual focusing
   - White balance is set to 3,100 K

3. For observing waveform by an oscilloscope at H.rate, connect CH-B of the oscilloscope with TP510(VIDEO OUT) of MAIN board synchronizing with minustrigger. Connect CH-A to the specified test point for measurement.

3.1.2 Precaution

1. For illumination, use two or more lighting apparatuses to illumination the test chart uniformly.

2. Colour temperature of lighting must be 3,100 K or more and intensity of illumination must be 3,000 lux or more in the center of the chart.

3. Use a clean and undamaged test chart.

4. Prevent the test chart from any light other than the specified light source.

5. The white balance sensor and the optical systems of this model are adjustment-free. However, if the PROCESS board requires adjustment in relation to the optical block as well as to the white balance sensor, it must be performed in pair. Therefore, when the PROCESS board is replaced owing to unavoidable reason, it is required to use the IC1 installed on the old PROCESS board for a new board.

3.1.3 Required test equipment

1. Colour TV monitor
2. AC power adapter (AA-V10 or AA-V3)
3. Oscilloscope (dual-trace type, for more than 20 MHz)
4. Frecuency counter
5. Vectorscope
6. Digital voltmeter

3.1.4 Required adjustment tools

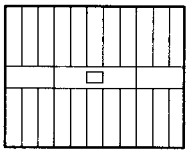
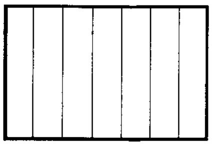
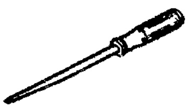
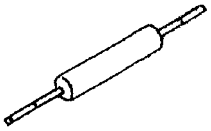
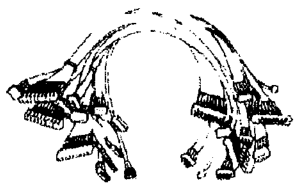
Gray scale pattern (GS-2A) Reflection type, 11 steps, γ = 2.2	Colour bar pattern (CC-2A) Reflection type, 7 colours
	
0.35 mm adjusting driver YTU94028	Ultramini VR adjusting driver YTU93036-2
	
Patch cord set YTU93059A	
	

Table 3-1-1

3.1.5 Connection for adjustment

Disassembly the main unit from the other units, and connect it with test equipment as shown in Fig. 3-1-1.

Connector	No. of pins	Parts Number	Connection
①	24	PEMCJ0813B-24	PROCESS CN23 ←→ MAIN CN7

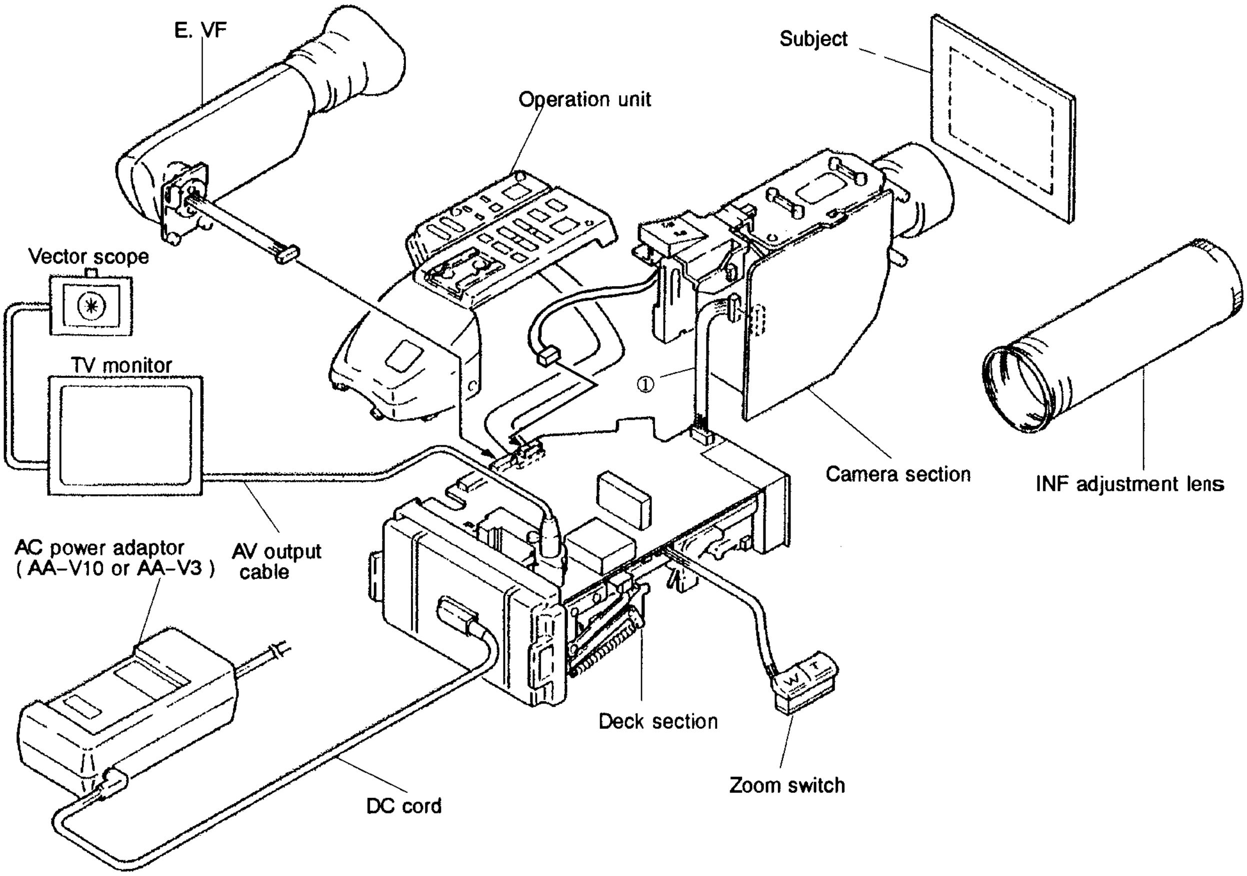

E. VF
Subject
Operation unit
Vector scope
TV monitor
①
Camera section
INF adjustment lens
AC power adaptor
(AA-V10 or AA-V3)
AV output cable
Deck section
DC cord
Zoom switch
W
T

Fig. 3-1-1 Standard setup for camera section adjustment

3.2 LUMINANCE (Y) SIGNAL CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on PROCESS board.*

3.2.1 Osc.freq.

Subject	• –
Mode	•EE
Equipment	•Frequency counter
Measurement point	•Q1 emitter
Adjustment part	•C16 (OSC) [CCD board]
Specification	•9.656250 MHz ± 50 Hz

1) Connect a frequency counter to the emitter of Q1 of the CCD board and adjust C16 to obtain 9.656250 MHz.

3.2.2 Vertical enhancer balance

Subject	•Gray scale
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP1 (V.EDGE)
Adjustment part	•R55 (1H DELAYED SIG LEVEL) [CCD board]
Specification	•Minimize

1) Pick up the gray scale and observe waveform at TP1.
2) Adjust R55 to minimize average level of the waveform.

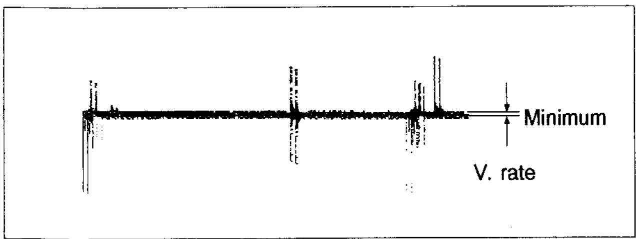


Fig. 3-2-1 V.edge

3.2.3 Hall element

Subject	• –
Mode	•EE •Iris closed
Equipment	•Digital voltmeter
Measurement point	•TP2 (HALL AMP OUT)
Adjustment part	•R96 (OFF SET)
Specification	•$1.0^{+0.3}_{-0}$ V DC

1) Shortcircuit between pin23 of CN23 of the PROCESS board and TP1 of the MAIN board with jumper wire and close the iris.
2) Connect a digital voltmeter to TP2 and adjust R96 so that the meter reads 1.0 VDC.
3) Disconnect jump wire.

Subject	•Gray scale
Mode	•EE •Iris open
Equipment	•Digital voltmeter
Measurement point	•TP2 (HALL AMP OUT)
Adjustment part	•R97 (GAIN)
Specification	•$3.9^{+0}_{-0.1}$ V DC

1) Shortcircuit between pin23 of CN23 of the PROCESS board and TP2 of the MAIN board with jumper wire and open the iris.
2) Pick up the gray scale.
3) Connect a digital voltmeter to TP2 and adjust R97 so that the meter reads 3.9 VDC.

3.2.4 Y level

Subject	•Gray scale
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP4 (YH)
Adjustment part	•R74 (EE LEVEL)
Specification	•0.20 ± 0.01 V

1) Pick up the gray scale and observe waveform at TP4.
2) Adjust R224 so that the waveform level becomes 0.20 V.

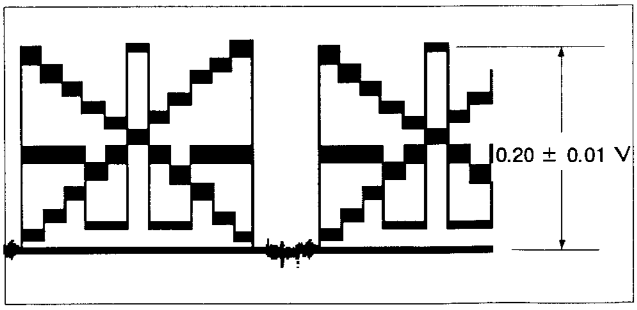


Fig. 3-2-2 Y level 1

Subject	•Gray scale
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•CN23 pin1
Adjustment part	•R224 (Y LEVEL)
Specification	•0.65 ± 0.01 V

1) Pick up the gray scale and observe waveform at pin1 of CN23.
2) Adjust R224 so that the waveform level becomes 0.65 V.

Notes: *After this adjustment, perform the adjustment of EE level (section 3.2.5).*

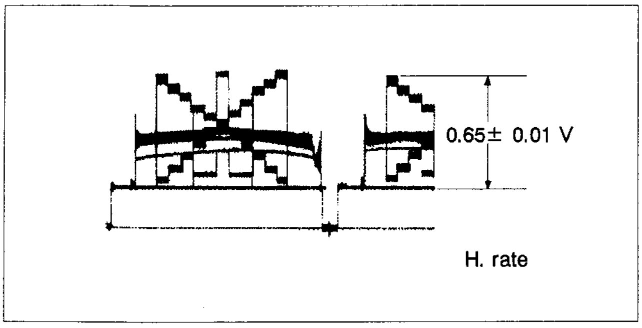


Fig. 3-2-3 Y level 2

3.2.5 EE level

Subject	•Gray scale
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•CN23 pin1
Adjustment part	•R74 (EE LEVEL)
Specification	•0.7 ± 0.01 V

1) Pick up the gray scale and observe waveform at pin1 of CN23.
2) Adjust R74 so that the waveform level becomes 0.7 V.

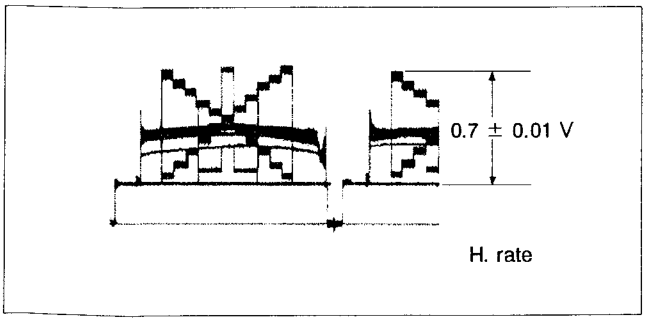


Fig. 3-2-4 EE level

3.2.6 Blooming

Subject	• –
Mode	•EE •1/100
Equipment	•TV monitor
Measurement point	•TV monitor screen
Adjustment part	•R64 (BLOOMING) [CCD board]
Specification	•Minimize

1) The shutter speed is set to 1/100 sec.
2) Pick up a fluorescent light and adjust R64 to minimize blooming.

Notes: *No matter how further R64 is turned, there will be no change in blooming observed on the monitor, therefore, set R64 to a position where blooming is minimum and won't change any more.*

3.3 COLOUR (C) SIGNAL CIRCUIT

Note: • *Unless otherwise specified, all measurement points and adjustment parts are located on PROCESS board.*

3.3.1 R/B balance

Subject	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP5 (BLUE)
EXT.trigger	•CN23 pin1
Adjustment part	•R39 (R/B SEPARATION) [CCD board]
Specification	•Intermediate

1) Pick up the colour bar pattern and connect the oscilloscope to TP5.
2) Observe the blue line (see Fig. 3-3-1) with external trigger from pin1 of CN23.
3) Adjust R39 so that Yellow is observed at intermediate point between Cyan and Magenta.

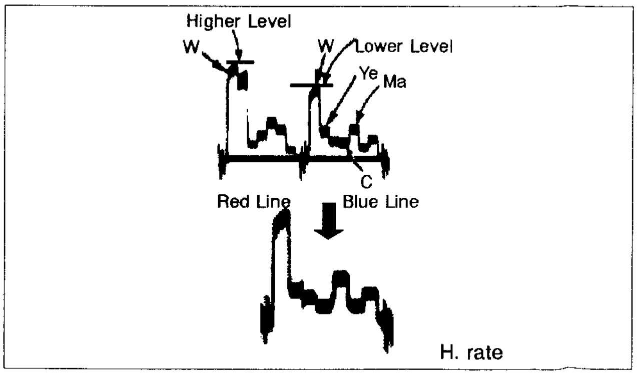


Fig. 3-3-1 R/B balance

3.3.2 Colour difference balance

Subject	•Colour bar
Mode	•EE
Equipment	•Vectorscope
Measurement point	•Vectorscope screen
Adjustment part	•R308 (COLOUR DET BAL)
Specification	•Minimize fluctuation

1) Pick up the colour bar pattern.
2) Adjust R308 to minimize fluctuation of red dot.

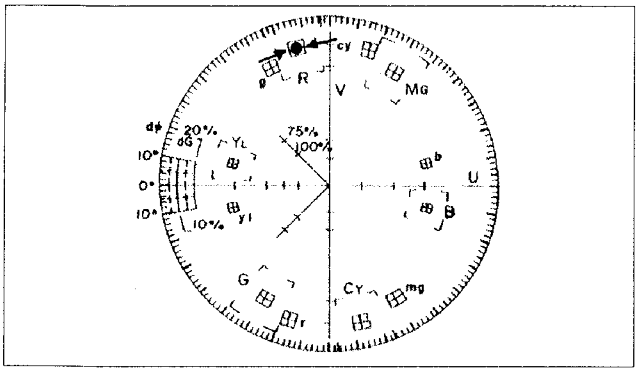


Fig. 3-3-2 Colour difference balance

3.3.3 CNR balance

Subject	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP3 (CNR)
Adjustment part	•R313 (CNR BALANCE)
Specification	•Flatten the waveform

1) Connect an oscilloscope to TP3.
2) Adjust R313 to flatten the waveform.

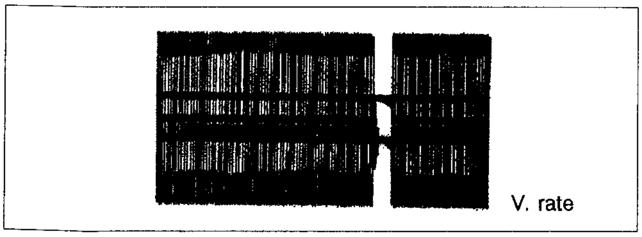


Fig. 3-3-3(A) CNR balance (1)

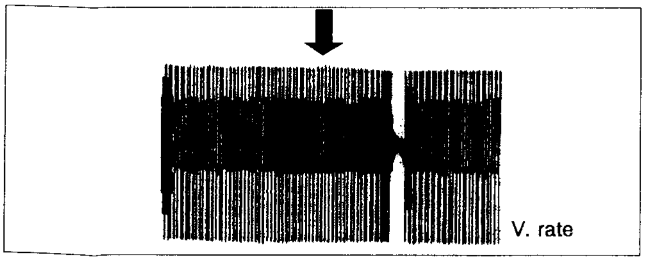


Fig. 3-3-3(B) CNR balance (2)

3.3.4 Carrier balance

Subject	• –
Mode	•EE •Iris closed
Equipment	•Vectorscope
Measurement point	•Vectorscope screen
Adjustment part	•R237 (R ENCODER BAL) •R238 (B ENCODER BAL)
Specification	•Center every det

1) Shortcircuit between pin23 of CN23 the PROCESS board and TP1 of the MAIN board with jumper wire and close the iris.
2) Adjust R237,R238 to center every det on the vectorscope.

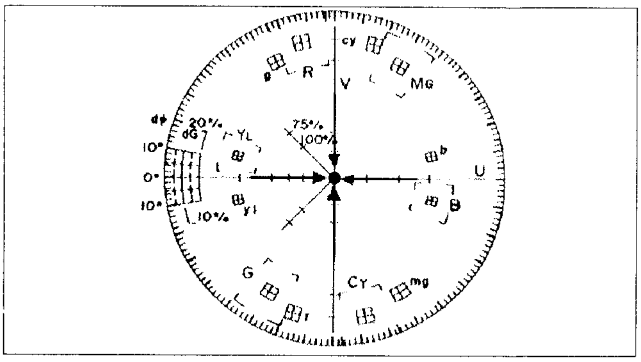


Fig. 3-3-4 Carrier balance

3.3.5 Colour phase

Subject	•Colour bar
Mode	•EE
Equipment	•Vectorscope
Measurement point	•Vectorscope screen
Adjustment part	•R217 (B-Y LEVEL)
Specification	•106°

1) Pick up the colour bar pattern.
2) Adjust R217 so that correlative angle of R and G phase is 106° on the vectorscope.

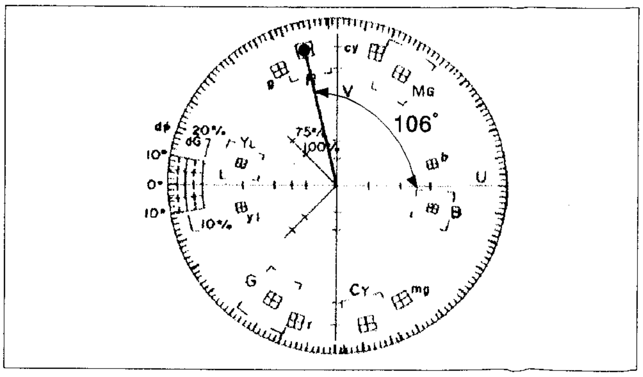


Fig. 3-3-5 Colour phase

3.3.6 Burst phase

Subject	•Colour bar
Mode	•EE
Equipment	•Vectorscope
Measurement point	•Vectorscope screen
Adjustment part	•R302 (BURST PHASE)
Specification	•90°

1) Pick up the colour bar pattern.
2) Adjust R302 so that the burst phase difference becomes 90° on the vectorscope.

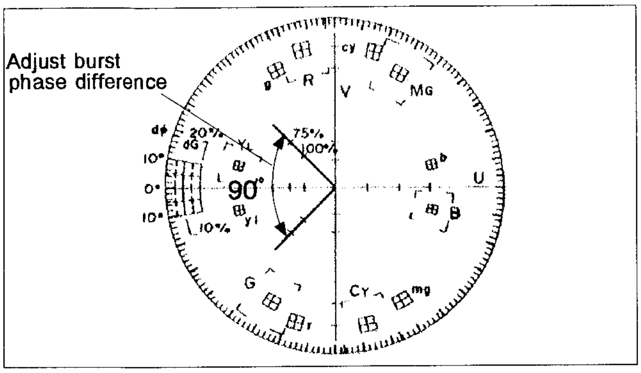


Fig. 3-3-6 Burst phase

3.3.7 Burst level

Subject	• -
Mode	•EE •Lens closed
Equipment	•Oscilloscope
Measurement point	•CN23 pin13
Adjustment part	•R307 (BURST LEVEL)
Specification	•0.30 ± 0.05 Vp-p

1) Close the lens with the cap.
2) Connect the oscilloscope to pin13 of CN23.
3) Adjust R307 so that the burst level is 0.30 Vp-p.

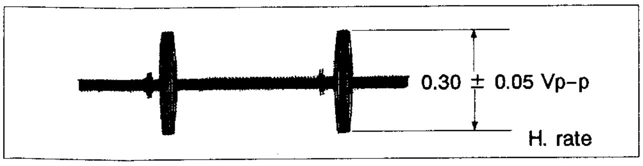


Fig. 3-3-7 Burst level

3.3.8 Colour level

Subject	•Colour bar
Mode	•EE
Equipment	•Vectorscope
Measurement point	•Vectorscope screen
Adjustment part	•R296 (COLOUR LEVEL)
Specification	• 1.25 time larger than burst level

1) Pick up the colour bar pattern.
2) Adjust R296 so that colour level of the red section of the colour burs becomes 1.25 time larger than burst level.
4) Condirm that both adjustment results of the item No.7 'Burst level' and this item (No.8 'Colour level') are satisfactory. If not, repeat the two adjustments alternately until they meet the specifications respectively.

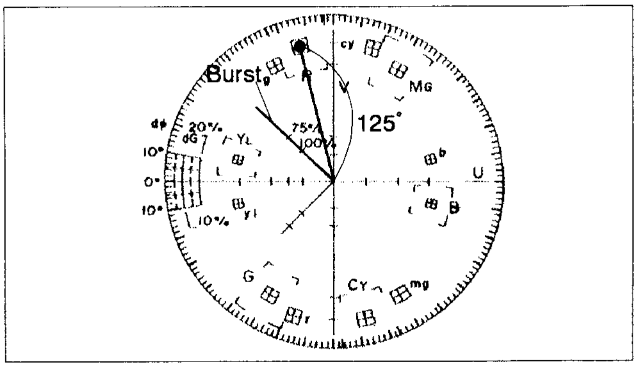


Fig. 3-3-8 Colour level

3.3.9 Focus zone position

Subject	• -
Mode	•EE •Lens closed
Equipment	•E. VF
Measurement point	•E. VF screen
Adjustment part	•C324 (FOCUS ZONE POSITION) [MAIN board]
Specification	•Center

1) Close the lens with the cap.
2) Display the 'Low Contrast' indication(▲◀▶▲) on the E. VF indicator.
3) Adjust C324 to position the Low Contrast indication in the center of the indicator.

3.4 ELECTRONIC VIEWFINDER(E. VF) ADJUSTMENT

Note: *Unless otherwise specified, all adjustment points and adjustment parts are located on E. VF board.*

3.4.1 Horizontal sync.

Subject	•Gray scale
Mode	•EE
Equipment	•E. VF
Measurement point	•E. VF screen
Adjustment part	•VR2 (H.HOLD)
Specification	•The midpoint of the two markings

1) Observing the viewfinder screen, turn VR2 fully clockwise to make the picture unstable.
2) Slowly return VR2 cunterclockwise to find a point where the picture becomes stable, and mark this position.
3) Turn VR2 fully counterclockwise to make the picture unstable in the same manner as 1) above.
4) Slowly return VR2 clockwise until the picture becomes stable, and mark this position of VR1.
5) Finally set VR2 to the midpoint between the two markings of 2) and 4).

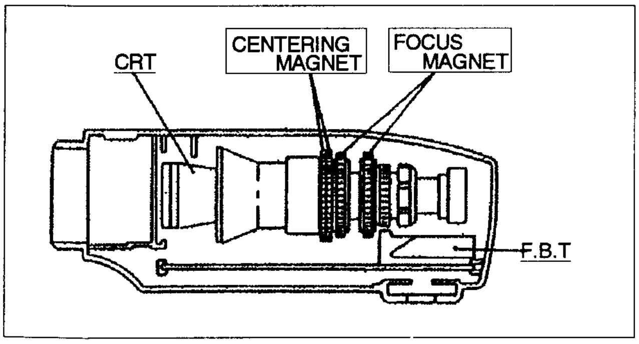


Fig. 3-4-1 E. VF

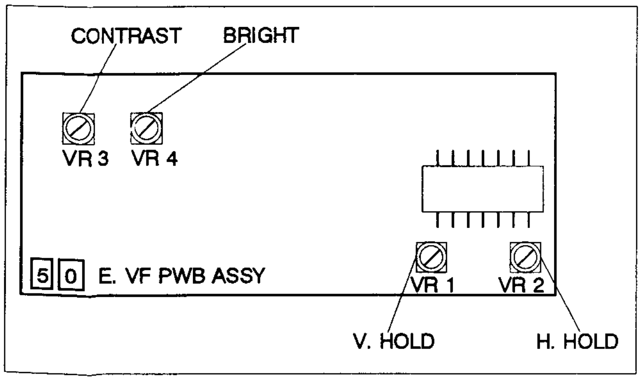


Fig. 3-4-2 E. VF board

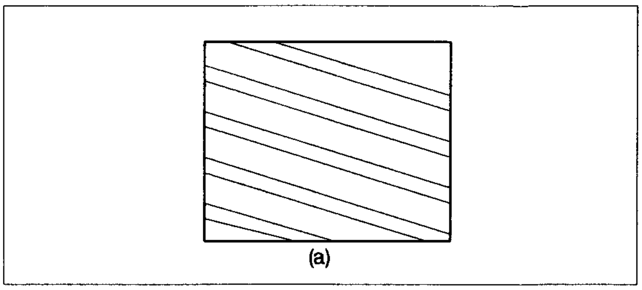


Fig. 3-4-3 Horizontal sync.1

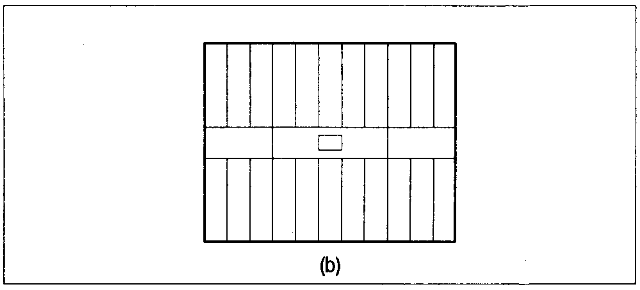


Fig. 3-4-4 Horizontal sync.2

3.4.2 Vertical scanning

Subject	•Gray scale
Mode	•EE
Equipment	•E. VF
Measurement point	•E.VF screen
Adjustment part	•VR1 (V. SIZE)
Specification	•Normal picture amplitude

1) Observing the viewfinder screen, adjust VR1 for normal picture amplitude.

3.4.3 Centering

Subject	•Gray scale
Mode	•EE
Equipment	•E. VF
Measurement point	•E.VF screen
Adjustment part	•Centering magnet [CRT assy]
Specification	•The center of the E. VF screen

1) Shoot the gray scale to position it in the center of the TV monitor screen, and adjust the centering magnet to locate the gray scale in the center of the viewfinder screen.

3.4.4 Focus

Subject	•Gray scale
Mode	•EE
Equipment	•E. VF
Measurement point	•E. VF screen
Adjustment part	•Focus magnet [CRT assy]
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust the focus magnet for the deflecting yoke so that the image in the central area of the gray scale screen is clear and defined.

3.4.5 Brightness

Subject	• –
Mode	•EE •Lens closed
Equipment	•E. VF
Measurement point	•E. VF screen
Adjustment part	•VR4 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR4 so that the raster of the CRT is just visible in the E. VF.

3.4.6 Contrast

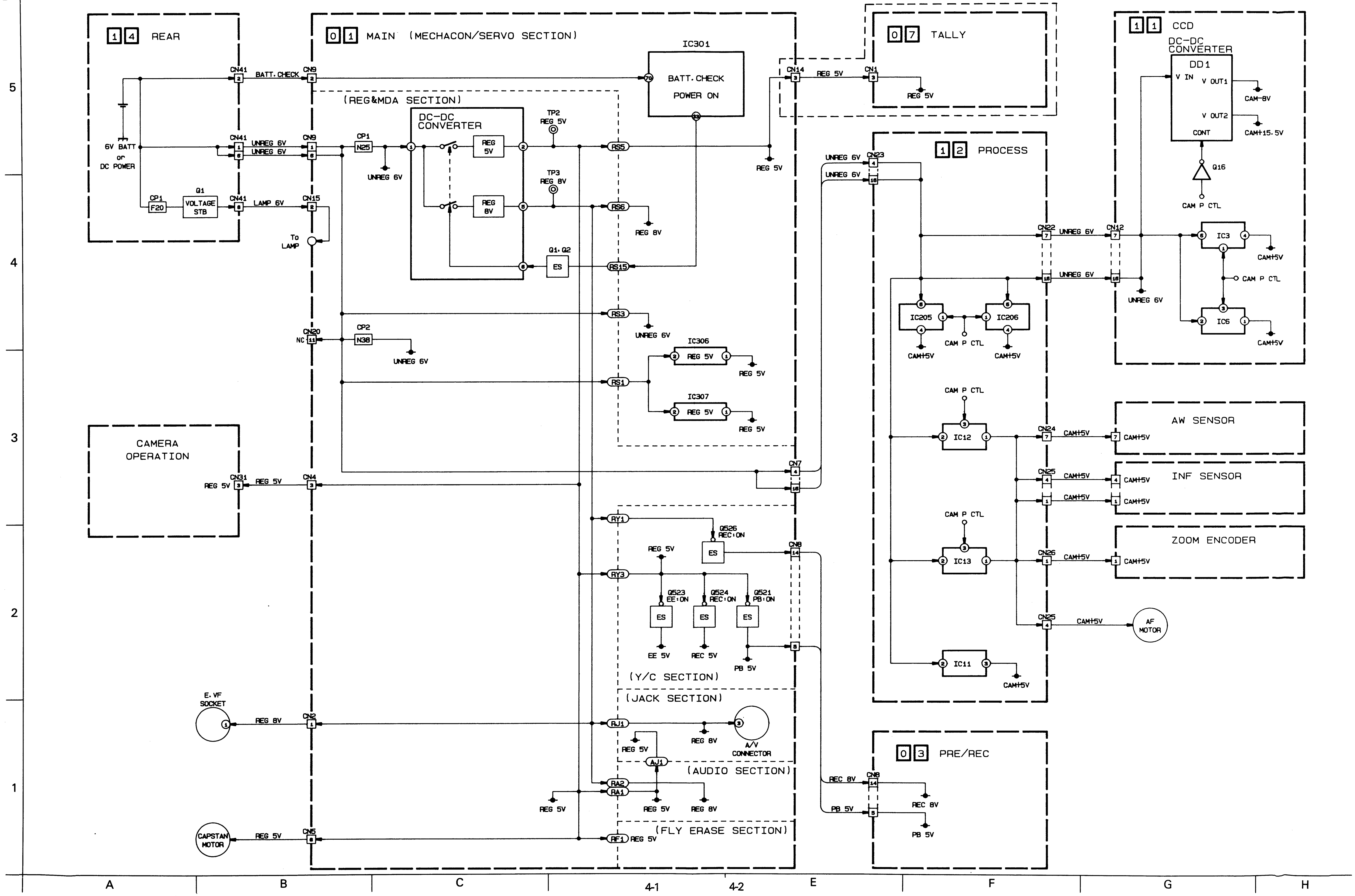
Subject	•Gray scale
Mode	•EE
Equipment	•E. VF
Measurement point	•E. VF screen
Adjustment part	•VR3 (CONTRAST)
Specification	•Gradation is optimum

1) While observing the viewfinder screen, adjust VR3 so that the gray scale gradation is optimum.

SECTION 4
OVERALL WIRING AND BLOCK DIAGRAMS

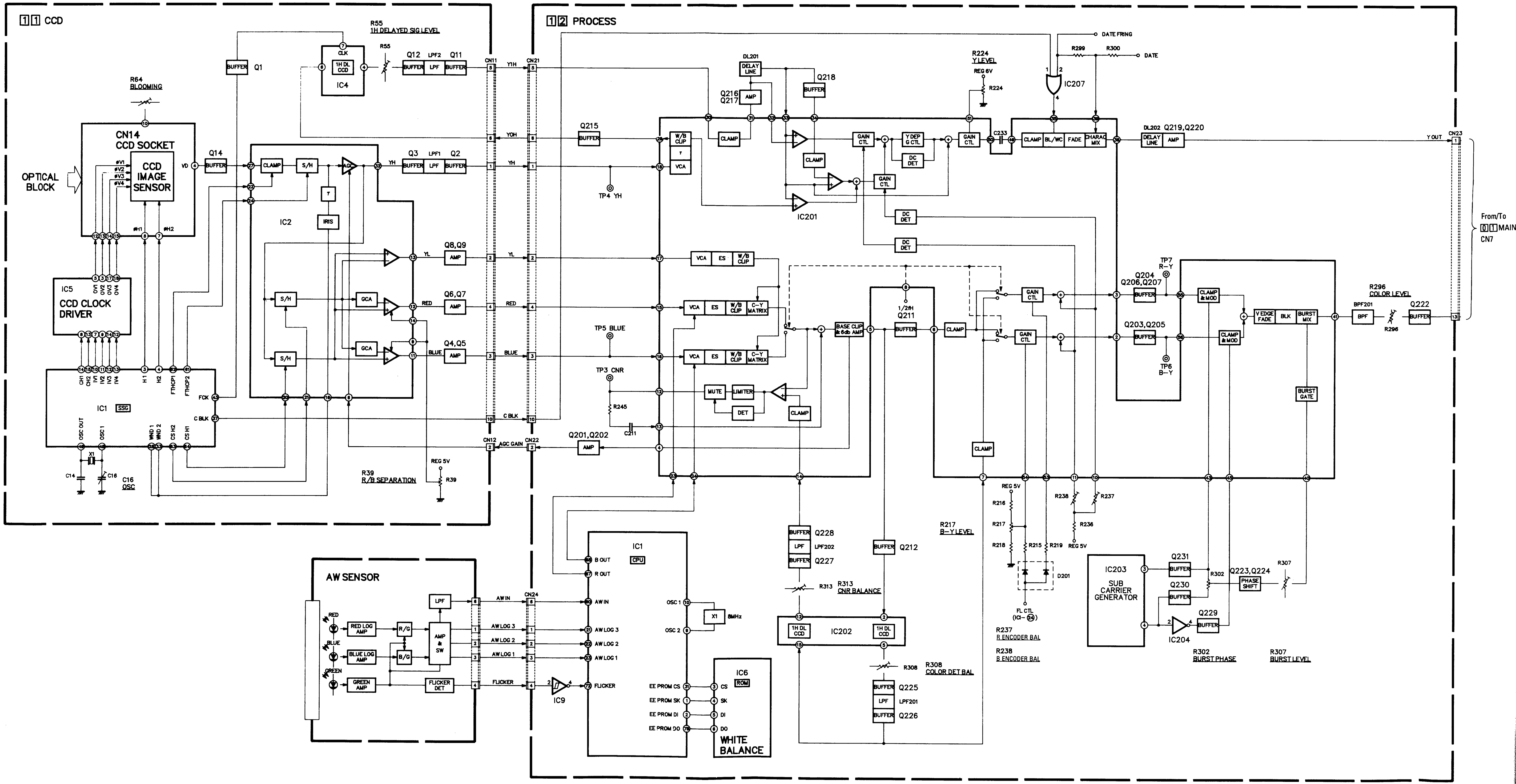
4.1 POWER SYSTEM BLOCK DIAGRAM

Only use for M5EG/EK


1 4 REAR
6V BATT or DC POWER
CP1 F20
Q1 VOLTAGE STB
CN41 BATT. CHECK
CN41 UNREG 6V
UNREG 6V
CN41 LAMP 6V
0 1 MAIN (MECHACON/SERVO SECTION)
(REG&MDA SECTION)
CN9
CN15
To LAMP
CP1 N25
UNREG 6V
DC-DC CONVERTER
REG 5V
REG 8V
TP2 REG 5V
TP3 REG 8V
Q1, Q2 ES
IC301 BATT. CHECK POWER ON
RS5
RS6
RS15
RS3
RS1
REG 8V
UNREG 6V
CN20 NC
CP2 N38
IC306 REG 5V
IC307 REG 5V
REG 5V
CN14 REG 5V
CN7
CAMERA OPERATION
CN31 REG 5V
CN4
RY1
RY3
Q526 REC:ON
Q523 EE:ON
Q524 REC:ON
Q521 PB:ON
ES
EE 5V
REC 5V
PB 5V
CN8
(Y/C SECTION)
(JACK SECTION)
E. VF SOCKET
CN2 REG 8V
RJ1
A/V CONNECTOR
AJ1
(AUDIO SECTION)
RA2
RA1
(FLY ERASE SECTION)
RF1
CAPSTAN MOTOR
CN5 REG 5V
0 7 TALLY
CN1 REG 5V
1 2 PROCESS
CN23 UNREG 6V
CN22 UNREG 6V
IC205
IC206
CAM P CTL
CAM+5V
IC12
IC13
IC11
CN24 CAM+5V
CN25 CAM+5V
CN26 CAM+5V
CN25 CAM+5V
AF MOTOR
1 1 CCD
DC-DC CONVERTER
DD1 V IN V OUT1 V OUT2 CONT
CAM-8V
CAM+15.5V
Q16
CAM P CTL
CN12 UNREG 6V
IC3
IC6
AW SENSOR
INF SENSOR
ZOOM ENCODER
0 3 PRE/REC
CN8 REC 8V
PB 5V
REC 8V
PB 5V
A
B
C
E
F
G
H
1
2
3
4
5
6

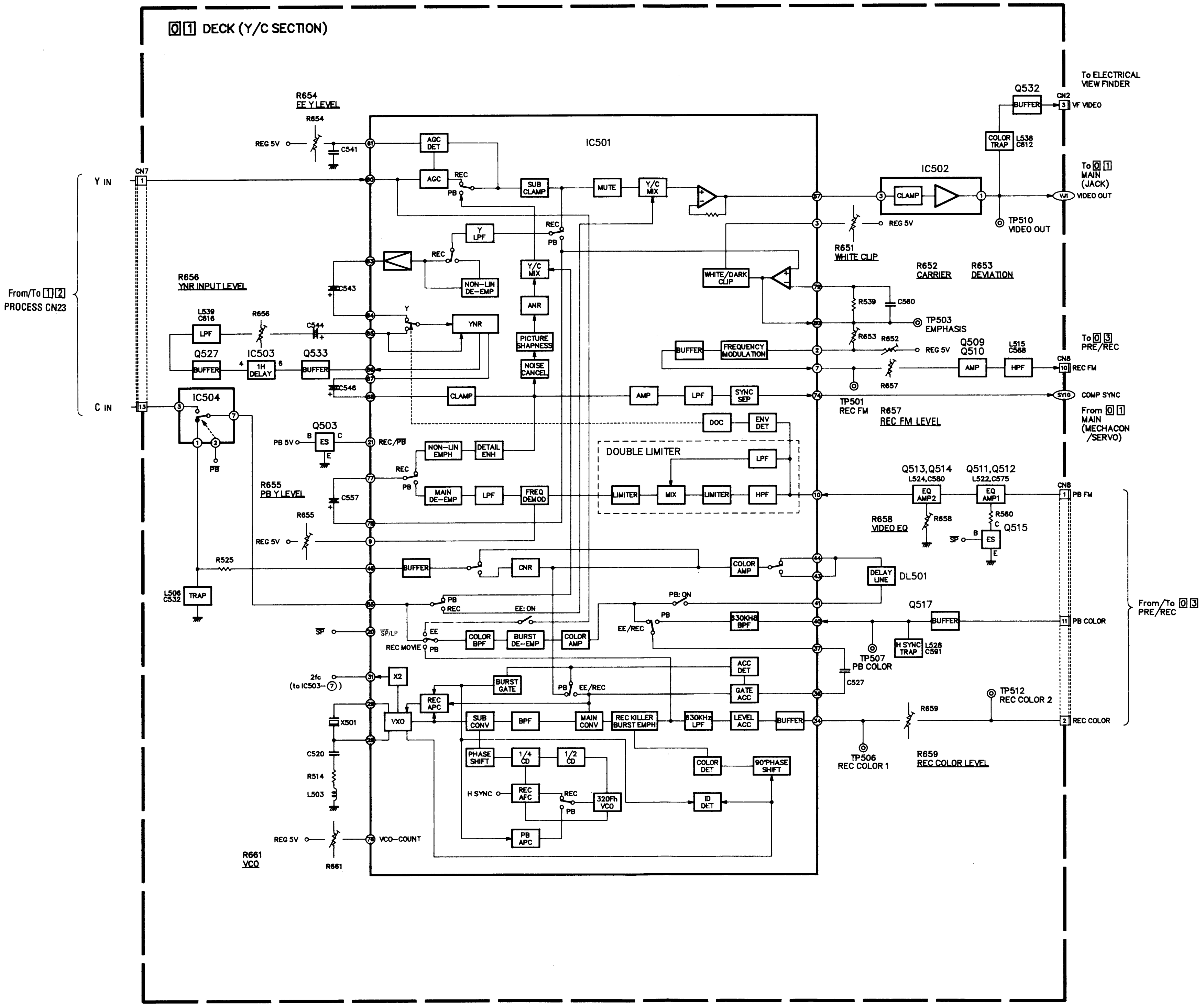
4.2 CAMERA AND VTR VIDEO SIGNAL BLOCK DIAGRAMS

— CAMERA —



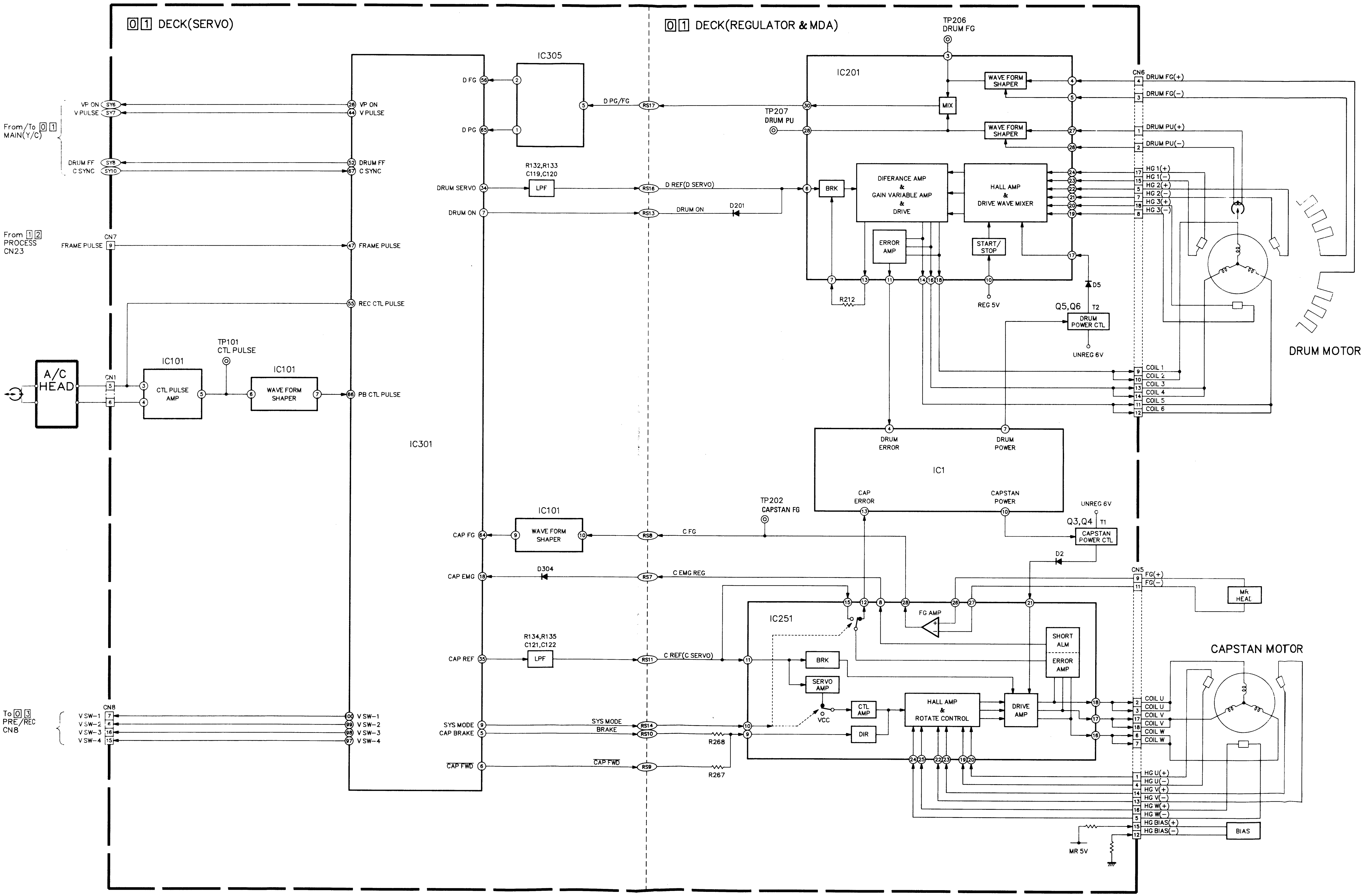
11 CCD
12 PROCESS
OPTICAL BLOCK
CN14 CCD SOCKET
CCD IMAGE SENSOR
IC5 CCD CLOCK DRIVER
IC1 SSG
R64 BLOOMING
Q14 BUFFER
Q1 BUFFER
IC4 1H DL CCD
R55 1H DELAYED SIG LEVEL
Q12 BUFFER
LPF2
Q11 BUFFER
Q3 BUFFER
LPF1
Q2 BUFFER
IC2
CLAMP
S/H
AGC
GCA
IRIS
Q8,Q9 AMP
Q6,Q7 AMP
Q4,Q5 AMP
YL
RED
BLUE
Y1H
YOH
YH
C BLK
AGC GAIN
CN11
CN21
CN12
CN22
CN24
R39 R/B SEPARATION
REG 5V
C14
X1
C16 OSC
FCK
OSC OUT
OSC 1
WND 1
WND 2
CS H2
CS H1
AW SENSOR
RED LOG AMP
BLUE LOG AMP
GREEN AMP
R/G
B/G
AMP & SW
LPF
FLICKER DET
AW IN
AW LOG 3
AW LOG 2
AW LOG 1
FLICKER
IC9
IC1 CPU
B OUT
R OUT
OSC 1
OSC 2
X1 8MHz
EE PROM CS
EE PROM SK
EE PROM DI
EE PROM DO
IC6 ROM
WHITE BALANCE
Q215 BUFFER
TP4 YH
TP5 BLUE
TP3 CNR
R245
C211
Q201,Q202 AMP
DL201 DELAY LINE
Q216 Q217 AMP
Q218 BUFFER
IC201
W/B CLIP
VCA
GAIN CTL
Y DEP G CTL
DC DET
VCA ES W/B CLIP
C-Y MATRIX
MUTE
LIMITER
DET
BASE CLIP & 6db AMP
1/2fH Q211 BUFFER
Q228 BUFFER
LPF LPF202
Q227 BUFFER
R313 CNR BALANCE
IC202 1H DL CCD
Q212 BUFFER
R308 COLOR DET BAL
Q225 BUFFER
LPF201
Q226 BUFFER
R224 Y LEVEL
REG 5V
DATE FRING
R299
R300
DATE
IC207
C233
CLAMP BL/WC FADE CHARAC MIX
DL202 DELAY LINE
Q219,Q220 AMP
Y OUT
CN23
From/To 01 MAIN CN7
TP7 R−Y
TP6 B−Y
Q204 Q206,Q207 BUFFER
Q203,Q205 BUFFER
CLAMP & MOD
V EDGE FADE
BLK
BURST MIX
BURST GATE
R296 COLOR LEVEL
BPF201 BPF
Q222 BUFFER
R217 B−Y LEVEL
R216
R218
R215
R219
D201
FL CTL (IC-24)
R237 R ENCODER BAL
R238 B ENCODER BAL
R236
IC203 SUB CARRIER GENERATOR
Q231 BUFFER
Q230 BUFFER
Q229 BUFFER
IC204
R302 BURST PHASE
Q223,Q224 PHASE SHIFT
R307 BURST LEVEL

— MAIN (DECK) —



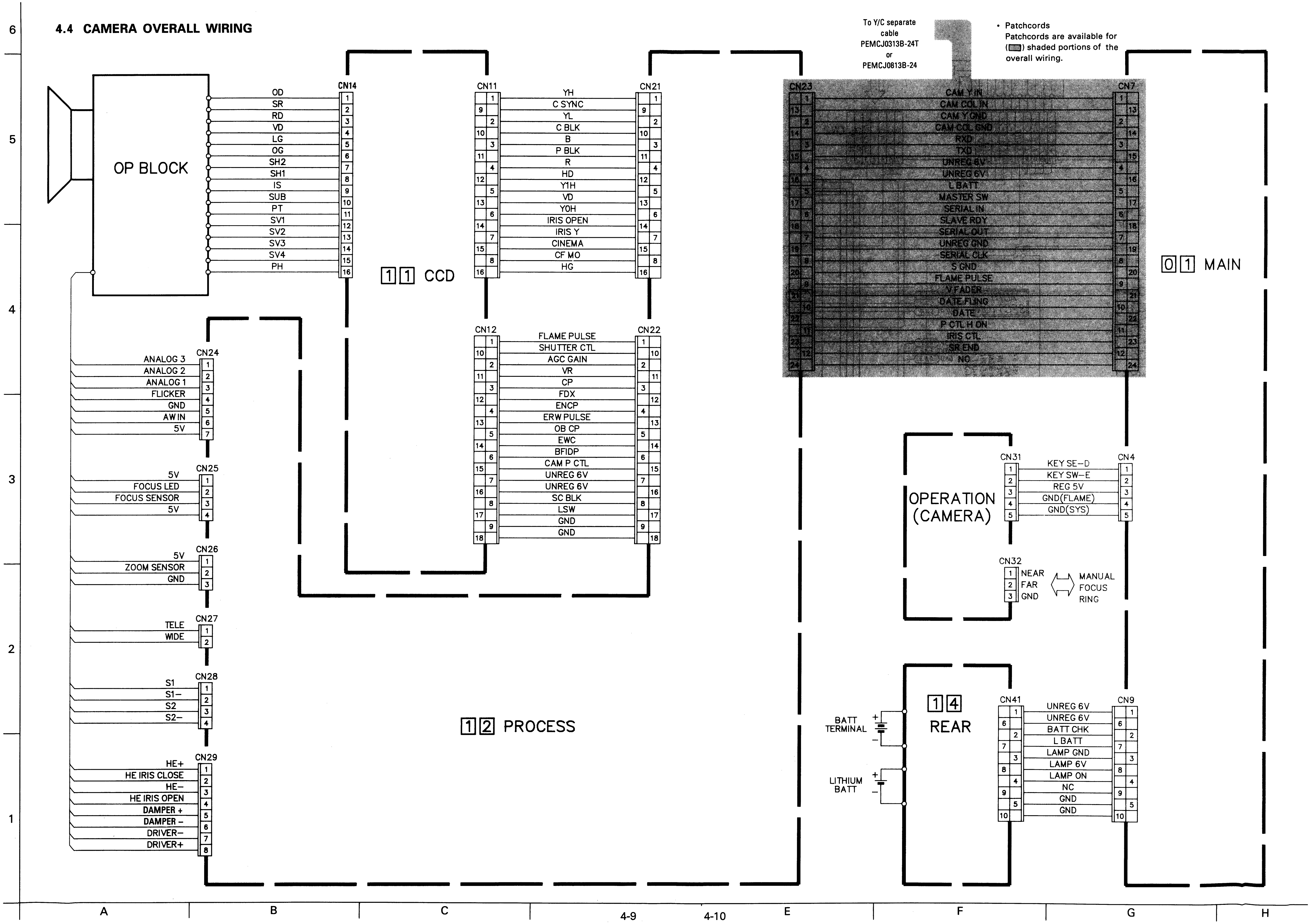
01 DECK (Y/C SECTION)
IC501
IC502
IC503
IC504
Q532
Q527
Q533
Q503
Q509
Q510
Q513,Q514
Q511,Q512
Q515
Q517
Y IN
C IN
CN7
From/To 12 PROCESS CN23
R654 EE Y LEVEL
R656 YNR INPUT LEVEL
R655 PB Y LEVEL
R661 VCO
R651 WHITE CLIP
R652 CARRIER
R653 DEVIATION
R657 REC FM LEVEL
R658 VIDEO EQ
R659 REC COLOR LEVEL
REG 5V
AGC DET
AGC
SUB CLAMP
MUTE
Y/C MIX
Y LPF
NON-LIN DE-EMP
YNR
ANR
PICTURE SHAPNESS
NOISE CANCEL
CLAMP
AMP
LPF
SYNC SEP
DOC
ENV DET
DOUBLE LIMITER
LIMITER
MIX
HPF
FREQ DEMOD
MAIN DE-EMP
NON-LIN EMPH
DETAIL ENH
WHITE/DARK CLIP
BUFFER
FREQUENCY MODULATION
1H DELAY
TRAP
CNR
COLOR AMP
DELAY LINE
DL501
COLOR BPF
BURST DE-EMP
630KHz BPF
630KHz LPF
H SYNC TRAP
ACC DET
GATE ACC
BURST GATE
REC APC
VXO
X2
X501
SUB CONV
BPF
MAIN CONV
REC KILLER BURST EMPH
LEVEL ACC
PHASE SHIFT
1/4 CD
1/2 CD
COLOR DET
90°PHASE SHIFT
REC AFC
320Fh VCO
ID DET
PB APC
H SYNC
VCO-COUNT
2fc (to IC503-⑦)
SP
SP/LP
REC MOVIE
EE/REC
PB: ON
EE: ON
REC/PB
REC
PB
EE
PB 5V
C541
C543
C544
C546
C557
C520
C527
C560
R514
L503
R525
R539
L539 C616
L506 C532
L538 C612
L515 C568
L524,C580
L522,C575
R560
L528 C591
TP510 VIDEO OUT
TP503 EMPHASIS
TP501 REC FM
TP507 PB COLOR
TP512 REC COLOR 2
TP506 REC COLOR 1
To ELECTRICAL VIEW FINDER
CN2
VF VIDEO
To 01 MAIN (JACK)
VIDEO OUT
To 03 PRE/REC
CN8
REC FM
COMP SYNC
From 01 MAIN (MECHACON /SERVO)
PB FM
From/To 03 PRE/REC
PB COLOR
REC COLOR

4.3 SERVO BLOCK DIAGRAM



01 DECK(SERVO)
01 DECK(REGULATOR & MDA)
From/To 01 MAIN(Y/C)
VP ON
V PULSE
DRUM FF
C SYNC
SY6
SY7
SY8
SY10
From 12 PROCESS CN23
CN7
FRAME PULSE
REC CTL PULSE
A/C HEAD
CN1
IC101
CTL PULSE AMP
TP101 CTL PULSE
WAVE FORM SHAPER
PB CTL PULSE
IC301
IC305
D FG
D PG
D PG/FG
DRUM SERVO
DRUM ON
R132,R133 C119,C120
LPF
D REF(D SERVO)
D201
RS17
RS16
RS13
To 03 PRE/REC CN8
CN8
V SW-1
V SW-2
V SW-3
V SW-4
CAP FG
CAP EMG
CAP REF
SYS MODE
CAP BRAKE
CAP FWD
D304
R134,R135 C121,C122
C FG
C EMG REG
C REF(C SERVO)
SYS MODE
BRAKE
R268
R267
RS8
RS7
RS11
RS14
RS10
RS9
TP206 DRUM FG
TP207 DRUM PU
IC201
MIX
WAVE FORM SHAPER
BRK
DIFERANCE AMP & GAIN VARIABLE AMP & DRIVE
HALL AMP & DRIVE WAVE MIXER
ERROR AMP
START/STOP
R212
REG 5V
D5
Q5,Q6
T2
DRUM POWER CTL
UNREG 6V
CN6
DRUM FG(+)
DRUM FG(−)
DRUM PU(+)
DRUM PU(−)
HG 1(+)
HG 1(−)
HG 2(+)
HG 2(−)
HG 3(+)
HG 3(−)
COIL 1
COIL 2
COIL 3
COIL 4
COIL 5
COIL 6
DRUM MOTOR
IC1
DRUM ERROR
DRUM POWER
CAP ERROR
CAPSTAN POWER
TP202 CAPSTAN FG
UNREG 6V
Q3,Q4
T1
CAPSTAN POWER CTL
D2
CN5
FG(+)
FG(−)
MR HEAD
IC251
FG AMP
SHORT ALM
ERROR AMP
BRK
SERVO AMP
CTL AMP
DIR
VCC
HALL AMP & ROTATE CONTROL
DRIVE AMP
CAPSTAN MOTOR
COIL U
COIL U
COIL V
COIL V
COIL W
COIL W
HG U(+)
HG U(−)
HG V(+)
HG V(−)
HG W(+)
HG W(−)
HG BIAS(+)
HG BIAS(−)
BIAS
MR 5V
6
5
4
3
2
1
A
B
C
E
F
G
H

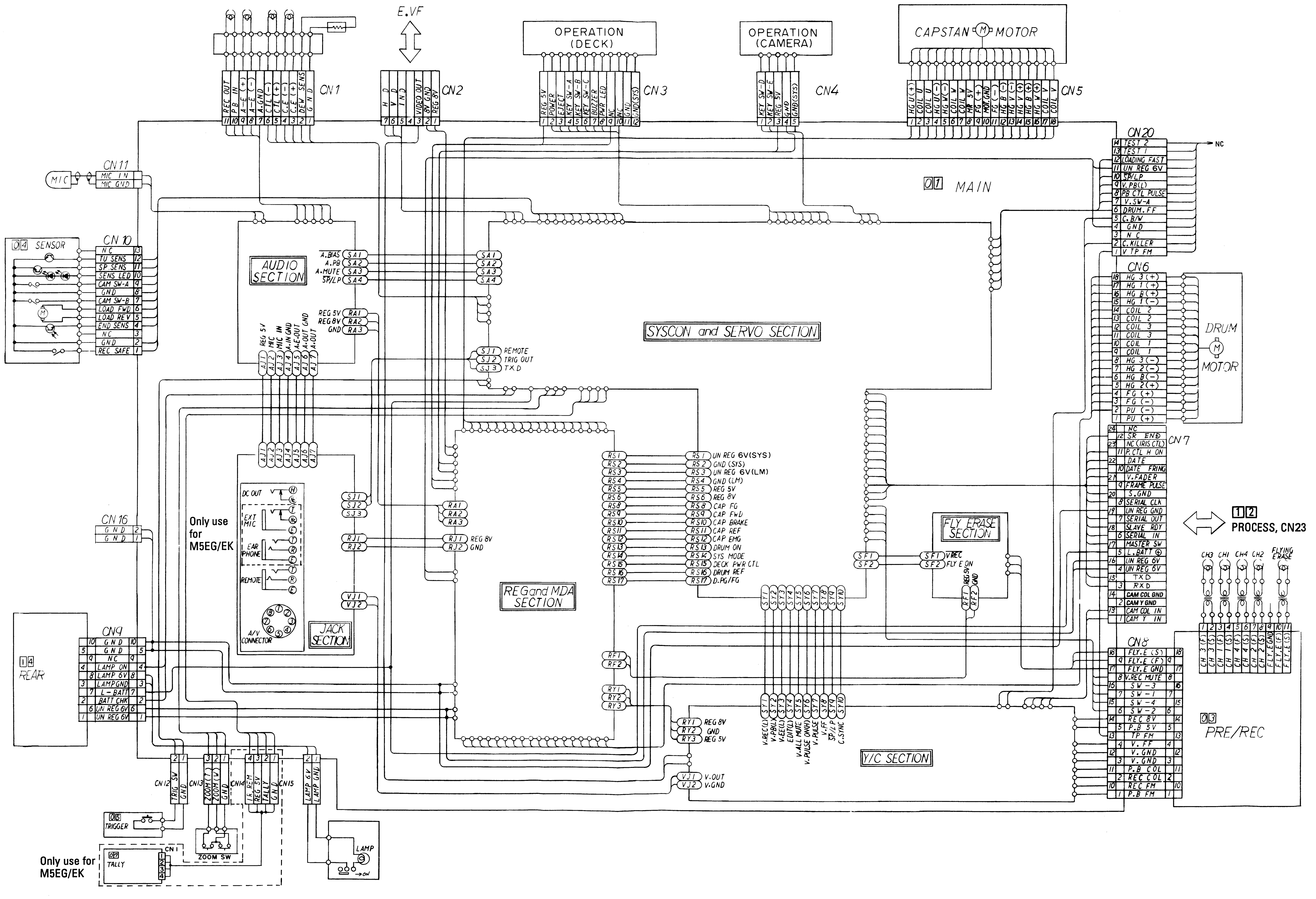
4.4 CAMERA OVERALL WIRING



OP BLOCK
CN14
OD
SR
RD
VD
LG
OG
SH2
SH1
IS
SUB
PT
SV1
SV2
SV3
SV4
PH
11 CCD
CN11
CN21
YH
C SYNC
YL
C BLK
B
P BLK
R
HD
Y1H
VD
Y0H
IRIS OPEN
IRIS Y
CINEMA
CF MO
HG
CN12
CN22
FLAME PULSE
SHUTTER CTL
AGC GAIN
VR
CP
FDX
ENCP
ERW PULSE
OB CP
EWC
BFIDP
CAM P CTL
UNREG 6V
UNREG 6V
SC BLK
LSW
GND
GND
CN24
ANALOG 3
ANALOG 2
ANALOG 1
FLICKER
GND
AW IN
5V
CN25
5V
FOCUS LED
FOCUS SENSOR
5V
CN26
5V
ZOOM SENSOR
GND
CN27
TELE
WIDE
CN28
S1
S1−
S2
S2−
CN29
HE+
HE IRIS CLOSE
HE−
HE IRIS OPEN
DAMPER +
DAMPER −
DRIVER−
DRIVER+
12 PROCESS
To Y/C separate cable PEMCJ0313B-24T or PEMCJ0813B-24
CN23
CN7
CAM Y IN
CAM COL IN
CAM Y GND
CAM COL GND
RXD
TXD
UNREG 6V
UNREG 6V
L BATT
MASTER SW
SERIAL IN
SLAVE RDY
SERIAL OUT
UNREG GND
SERIAL CLK
S GND
FLAME PULSE
V FADER
DATE FLING
DATE
P CTL H ON
IRIS CTL
SR END
NC
01 MAIN
OPERATION (CAMERA)
CN31
CN4
KEY SE-D
KEY SW-E
REG 5V
GND(FLAME)
GND(SYS)
CN32
NEAR
FAR
GND
MANUAL FOCUS RING
14 REAR
BATT TERMINAL
LITHIUM BATT
CN41
CN9
UNREG 6V
UNREG 6V
BATT CHK
L BATT
LAMP GND
LAMP 6V
LAMP ON
NC
GND
GND
6
5
4
3
2
1
A
B
C
E
F
G
H

- Patchcords
  Patchcords are available for (▨) shaded portions of the overall wiring.

4.5 DECK OVERALL WIRING

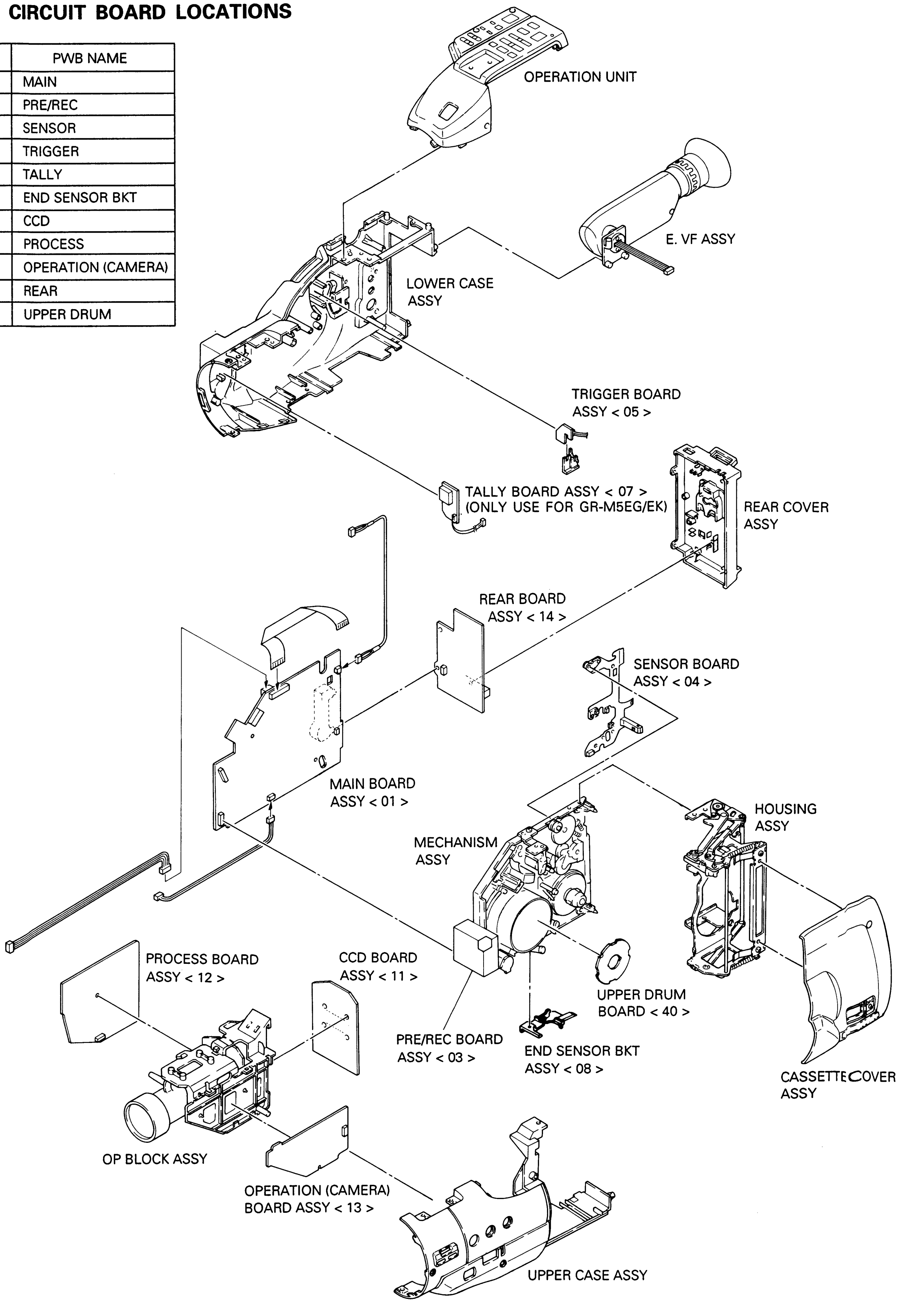


E.VF
OPERATION (DECK)
OPERATION (CAMERA)
CAPSTAN MOTOR
CN1
REC OUT
P.B IN
A-E (+)
A-E (-)
A.GND
CTL (-)
CTL (+)
C.E (-)
C.E (+)
DEW SENS
GND
CN2
H.D
V.D
IND
VIDEO OUT
8V GND
REG 8V
CN3
REG 5V
POWER
EJECT
KEY SW-A
KEY SW-B
KEY SW-C
BUZZER
PWR LED
NC
GND
GND(SYS)
CN4
KEY SW-D
KEY SW-E
REG 5V
GND
GND(SYS)
CN5
HG U(+)
COIL U
HG U(-)
HG W(-)
COIL W
MR 5V
FG (+)
MOT.GND
FG (-)
HG V(-)
HG V(+)
HG B(+)
HG W(+)
COIL V
COIL V
CN11
MIC
MIC IN
MIC GND
04 SENSOR
CN10
NC
TU SENS
SP SENS
SENS LED
CAM SW-A
GND
CAM SW-B
LOAD FWD
LOAD REV
END SENS
NC
GND
REC SAFE
01 MAIN
AUDIO SECTION
A.BIAS SA1
A.PB SA2
A.MUTE SA3
SP/LP SA4
REG 5V RA1
REG 8V RA2
GND RA3
AJ1 REG 5V
AJ2 MIC
AJ3 MIC IN
AJ4 A.IN GND
AJ5 A.E.OUT
AJ6 A.OUT GND
AJ7 A.OUT
SYSCON and SERVO SECTION
SJ1 REMOTE
SJ2 TRIG OUT
SJ3 TXD
CN20
TEST 2
TEST 1
LOADING FAST
UN REG 6V
SP/LP
V.PB(L)
PB CTL PULSE
V.SW-A
DRUM.FF
C.B/W
GND
NC
C.KILLER
V TP FM
NC
CN6
HG 3 (+)
HG 1 (+)
HG B (+)
HG 1 (-)
COIL 2
COIL 2
COIL 3
COIL 3
COIL 1
COIL 1
HG 3 (-)
HG 2 (-)
HG B (-)
HG 2 (+)
FG (+)
FG (-)
PU (-)
PU (+)
DRUM MOTOR
CN7
NC
SR END
NC (IRIS CTL)
P.CTL H ON
DATE
DATE FRING
V.FADER
FRAME PULSE
S.GND
SERIAL CLK
UN REG GND
SERIAL OUT
SLAVE RDY
SERIAL IN
MASTER SW
L.BATT ⊕
UN REG 6V
UN REG 6V
TXD
RXD
CAM COL GND
CAM Y GND
CAM COL IN
CAM Y IN
12 PROCESS, CN23
CH3 CH1 CH4 CH2 FLYING ERASE
CH 3 (F)
CH 3 (S)
CH 1 (F)
CH 1 (S)
CH 4 (F)
CH 4 (S)
CH 2 (F)
CH 2 (S)
FLY.E GND
FLY.E (F)
FLY.E (S)
DC OUT
EXT MIC
EAR PHONE
REMOTE
A/V CONNECTOR
JACK SECTION
Only use for M5EG/EK
SJ1 SJ2 SJ3
RA1 RA2 RA3
RJ1 REG 8V
RJ2 GND
VJ1 VJ2
CN16
GND
GND
14 REAR
CN9
GND
GND
NC
LAMP ON
LAMP 6V
LAMPGND
L-BATT
BATT CHK
UN REG 6V
UN REG 6V
REG and MDA SECTION
RS1 UN REG 6V(SYS)
RS2 GND (SYS)
RS3 UN REG 6V(LM)
RS4 GND (LM)
RS5 REG 5V
RS6 REG 8V
RS8 CAP FG
RS9 CAP FWD
RS10 CAP BRAKE
RS11 CAP REF
RS12 CAP EMG
RS13 DRUM ON
RS14 SYS MODE
RS15 DECK PWR CTL
RS16 DRUM REF
RS17 D.PG/FG
FLY ERASE SECTION
SF1 V.REC
SF2 FLY E ON
RF1 REG 5V
RF2 GND
RF1 RF2
RY1 RY2 RY3
RY1 REG 8V
RY2 GND
RY3 REG 5V
VJ1 V.OUT
VJ2 V.GND
SY1 V.REC(L)
SY2 V.PB(L)
SY3 V.EE(L)
SY4 EDIT(L)
SY5 V.ALL MUTE
SY6 V.PULSE ON(H)
SY7 V.PULSE
SY8 V.FF
SY9 SP/LP
SY10 C.SYNC
Y/C SECTION
CN8
FLY.E (S)
FLY.E (F)
FLY.E GND
V.REC MUTE
SW-3
SW-1
SW-4
SW-2
REC 8V
P.B 5V
TP FM
V.FF
V.GND
V.GND
P.B COL
REC COL
REC FM
P.B FM
03 PRE/REC
CN12
TRIG SW
GND
CN13
ZOOM (T)
ZOOM (W)
GND
CN14
LE REM
REG 5V
TALLY
GND
CN15
LAMP 6V
LAMP GND
05 TRIGGER
ZOOM SW
LAMP
ON
07 TALLY
CN1
Only use for M5EG/EK

SECTION 5
DIAGRAMS AND CIRCUIT BOARDS

5.1 CIRCUIT BOARD LOCATIONS

No.	PWB NAME
01	MAIN
03	PRE/REC
04	SENSOR
05	TRIGGER
07	TALLY
08	END SENSOR BKT
11	CCD
12	PROCESS
13	OPERATION (CAMERA)
14	REAR
40	UPPER DRUM


OPERATION UNIT
E. VF ASSY
LOWER CASE ASSY
TRIGGER BOARD ASSY < 05 >
TALLY BOARD ASSY < 07 > (ONLY USE FOR GR-M5EG/EK)
REAR COVER ASSY
REAR BOARD ASSY < 14 >
SENSOR BOARD ASSY < 04 >
MAIN BOARD ASSY < 01 >
HOUSING ASSY
MECHANISM ASSY
PROCESS BOARD ASSY < 12 >
CCD BOARD ASSY < 11 >
UPPER DRUM BOARD < 40 >
PRE/REC BOARD ASSY < 03 >
END SENSOR BKT ASSY < 08 >
CASSETTE COVER ASSY
OP BLOCK ASSY
OPERATION (CAMERA) BOARD ASSY < 13 >
UPPER CASE ASSY

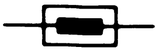
5.2 SCHEMATIC DIAGRAM NOTES

1. □ parts are safety related parts. When replacing them, be sure to use the specified parts.

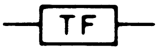
2. Unit indications

No units : [Ω]	No units : [μF]	No units : [μH]
K : [kΩ]	P : [pF]	m : [mH]
M : [MΩ]		

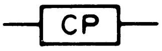
Thermistor



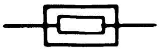
Thermal Fuse

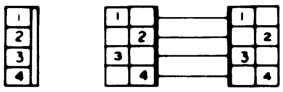


Circuit Protector

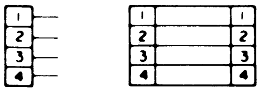


Posistor

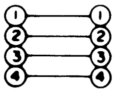




: Connector



: Board in connector



: Direct connection

COUNT UP : Active only at high.

$\overline{\text{COUNT DOWN}}$: Active only at low.

(VS) : Connected pattern in the board.

(MS) Abbreviations

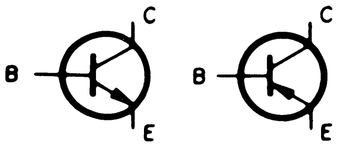
(SM)

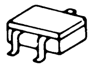
V : Video M : Mechacon

S : Servo A : Audio

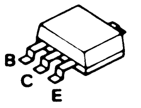
VS : Signal flow from video to servo.

3. Chip transistor



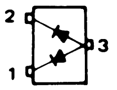


(Standard type)

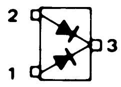


4. Chip diode

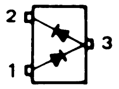
DAP202U
MA141WA

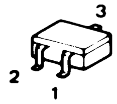


DAN202U
MA141WK

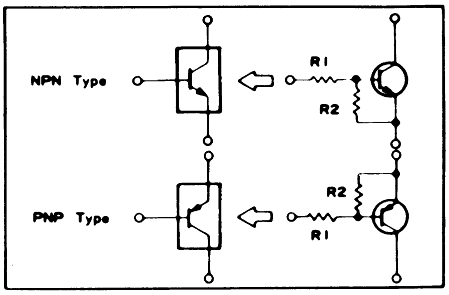


MA143
DA204U





5. Digital transistor



RESISTOR VALUES

JUNCTION	Part No.	R1 (kΩ)	R2 (kΩ)
PNP	DTA124EU	22	22
NPN	DTC144EU DTC124EU	47 22	47 22

Note: The digital transistor includes built in resistors. It features small size and high reliability. Both PNP and NPN types are available.

USES: INVERTER, INTERFACE, DRIVER CIRCUITS.

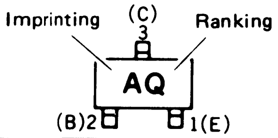
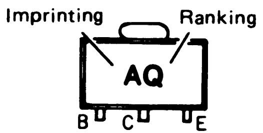
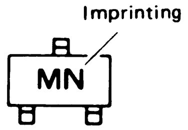
6. Definition of the surface and the back of circuit board diagrams
   Front : Side on which discrete parts are assembled
   Rear : Side on which chip parts are assembled

7. About "Chip Parts List"
   This list shows respective locations of chip parts on PWB boards with their addresses which show their locating sections divided by red lines in diagrams.

5.3 REPLACING SUBMINIATURE "CHIP" PARTS

1. Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
2. Additional compactness is achieved by using subminiature chip parts for certain circuit elements. When replacing these parts, note the cautions outlined below.
3. Chip transistors and diodes used in this model are outlined bellow.
4 Refer to parts list for correct part numbers.

- **Chip transistor and chip diode imprinting**

Transistors				Diodes	
Type	**Imprinting**	**Type**	**Imprinting**	**Type**	**Imprinting**
DTA124EU	15	2SB798	DM, DL, DK	DAN202U	N
DTA144EU	16	2SC2412K(S)	BS	DAP202K	P
DTC124EU	25	2SC3931	UB~UD	DAP202U	P
DTC124XU	45	2SC3936(BC)	KB, KC	DA204U	K
DTC144EU	26	2SC4081	BQ~BS	FMN1	N1
FMC2	C2	2SC4097(QR)	CQ, CR	IMN10	N10
FMG1	G1	2SC4098(PQ)	AP, AQ	MA141WA	MN
FMG2	G2	2SC4099(NP)	JN, JP	MA141WK	MT
FMQ1	Q1	2SC4176	B33, B34, B35	MA143	MC
FMS2	S2	2SC4177(56)	L5, L6	MA3075H	7.5H
FMU1	U1	2SC4178(34)	F13, F14	MA704	MIK
FMW1	W1	2SC4181	L17, L18	MA714	MIP
FMW3	W3	2SD1819	YR~YS	MA716	M1U
FMY1	Y1	2SJ146	4D	RB451F	3C
2SA1036K(QR)	HQ ~ HR	2SK198P,Q	10P, 10Q	RD7.5M-T1B2	752
2SA1532(BC)	EB, EC	2SK620	3N	RD7.5M-T2B2	752
2SA1576	FQ ~ FS	2SK665	30	RLZ5.6B	753
2SA1577	HQ ~ HS	3SK179	V03	RLZ8.2B	822
2SA1610	Y33, Y34			RD7.5MB3	125
2SA1611(56)	M5, M6			RD8.2MB2	165
2SB1218(RS)	AR, AS				
2SB624	BV4				
					

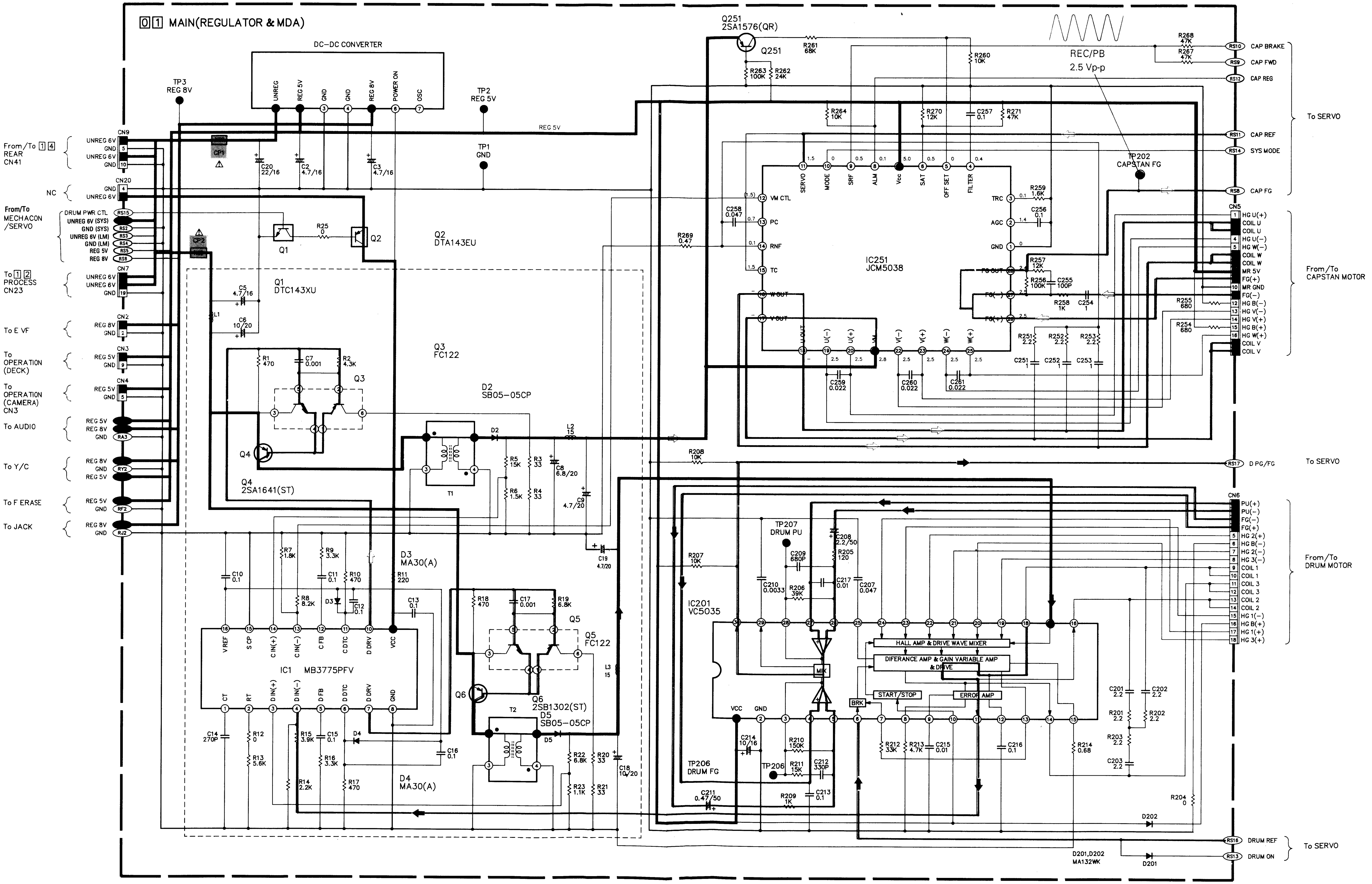
5.4 REGULATOR & MDA SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

- Voltage
REC: Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.
*Where voltage differ between recording and playback, the voltage during playback is shown in parenthesis.

- Waveform
REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

- SIGNAL PATH
⬅ DRUM SERVO
⇦ CAPSTAN SERVO



01 MAIN(REGULATOR & MDA)
DC-DC CONVERTER
UNREG
REG 5V
GND
GND
REG 8V
POWER ON
OSC
TP3 REG 8V
TP2 REG 5V
TP1 GND
REG 5V
From/To 14 REAR CN41
CN9
UNREG 6V
GND
UNREG 6V
GND
NC
CN20
GND
UNREG 6V
From/To MECHACON /SERVO
DRUM PWR CTL
UNREG 6V (SYS)
GND (SYS)
UNREG 6V (LM)
GND (LM)
REG 5V
REG 8V
RS15
RS2
RS3
RS4
RS5
RS8
To 12 PROCESS CN23
CN7
To E VF
CN2
REG 8V
To OPERATION (DECK)
CN3
REG 5V
To OPERATION (CAMERA) CN3
CN4
To AUDIO
REG 5V
REG 8V
GND
RA3
To Y/C
RY2
To F ERASE
RF2
To JACK
RJ2
CP1
CP2
C20 22/16
C2 4.7/16
C3 4.7/16
R25 0
Q1
Q2
Q2 DTA143EU
Q1 DTC143XU
C5 4.7/16
L1
C6 10/20
Q3 FC122
R1 470
C7 0.001
R2 4.3K
Q3
Q4
Q4 2SA1641(ST)
D2 SB05-05CP
D2
L2 15
T1
R5 15K
R3 33
C8 6.8/20
R6 1.5K
R4 33
C9 4.7/20
C19 4.7/20
R7 1.8K
R9 3.3K
C10 0.1
C11 0.1
R10 470
D3 MA30(A)
R11 220
R8 8.2K
D3
C12 0.1
C13 0.1
IC1 MB3775PFV
VREF
SCP
C IN(+)
C IN(-)
C FB
C DTC
D DRV
VCC
CT
RT
D IN(+)
D IN(-)
D FB
D DTC
D DRV
GND
C14 270P
R12 0
R13 5.6K
R15 3.9K
C15 0.1
D4
R16 3.3K
R14 2.2K
R17 470
D4 MA30(A)
C16 0.1
R18 470
C17 0.001
R19 6.8K
Q5
Q5 FC122
Q6
Q6 2SB1302(ST)
D5 SB05-05CP
T2
D5
L3 15
R22 6.8K
R20 33
C18 10/20
R23 1.1K
R21 33
Q251 2SA1576(QR)
Q251
R261 68K
R263 100K
R262 24K
R260 10K
R264 10K
R270 12K
C257 0.1
R271 47K
REC/PB 2.5 Vp-p
R268 47K
R267 47K
CAP BRAKE
CAP FWD
CAP REG
RS10
RS9
RS12
To SERVO
CAP REF
SYS MODE
RS11
RS14
TP202 CAPSTAN FG
CAP FG
RS8
SERVO
MODE
SRF
ALM
Vcc
SAT
OFF SET
FILTER
VM CTL
PC
RNF
TC
W OUT
V OUT
U OUT
U(-)
U(+)
VM
V(-)
V(+)
W(-)
W(+)
TRC
AGC
GND
FG OUT
FG(-)
FG(+)
C258 0.047
R269 0.47
IC251 JCM5038
R259 1.8K
C256 0.1
R257 12K
R256 100K
C255 100P
R258 1K
C254 1
R251 2.2
R252 2.2
R253 2.2
C251 1
C252 1
C253 1
C259 0.022
C260 0.022
C261 0.022
R255 680
R254 680
CN5
HG U(+)
COIL U
COIL U
HG U(-)
HG W(+)
COIL W
COIL W
MR 5V
FG(+)
MR GND
FG(-)
HG B(-)
HG V(-)
HG B(+)
HG W(+)
COIL V
COIL V
From/To CAPSTAN MOTOR
R208 10K
D PG/FG
RS17
To SERVO
CN6
PU(+)
PU(-)
FG(-)
FG(+)
HG 2(+)
HG B(-)
HG 2(-)
HG 3(-)
COIL 1
COIL 1
COIL 3
COIL 3
COIL 2
COIL 2
HG 1(-)
HG B(+)
HG 1(+)
HG 3(+)
From/To DRUM MOTOR
TP207 DRUM PU
C208 2.2/50
R205 120
C209 680P
R207 10K
C210 0.0033
R206 39K
C217 0.01
C207 0.047
IC201 VC5035
HALL AMP & DRIVE WAVE MIXER
DIFERANCE AMP & GAIN VARIABLE AMP & DRIVE
MIX
START/STOP
ERROR AMP
BRK
VCC
GND
C214 10/16
R210 150K
R211 15K
C212 330P
TP206
TP206 DRUM FG
R212 33K
R213 4.7K
C215 0.01
C216 0.1
R214 0.68
C201 2.2
C202 2.2
R201 2.2
R202 2.2
R203 2.2
C203 2.2
C211 0.47/50
R209 1K
C213 0.1
R204 0
D202
D201
D201,D202 MA132WK
DRUM REF
DRUM ON
RS16
RS13
To SERVO

5.5 MECHACON & SERVO SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Voltage
  REC: Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

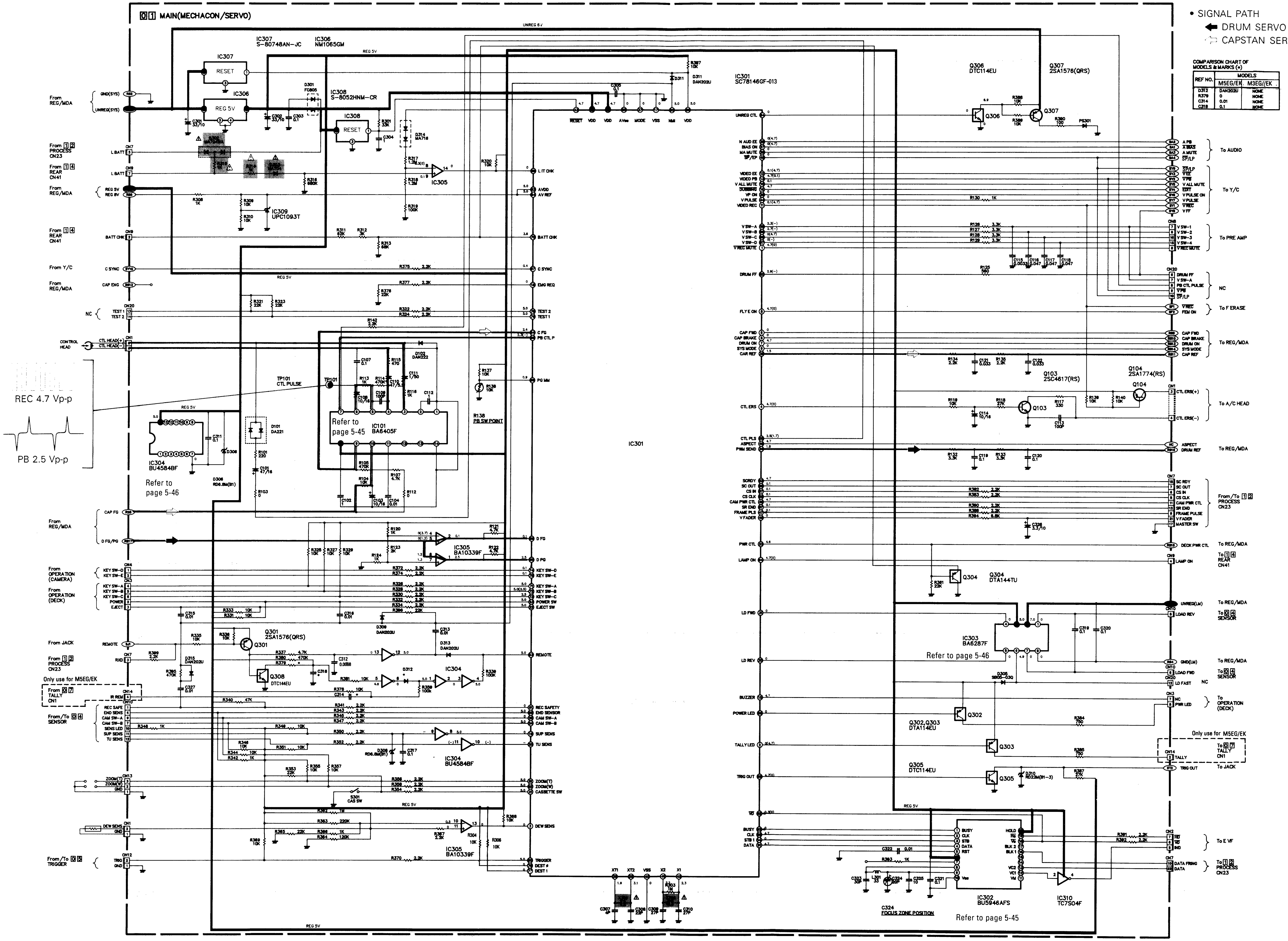
*Where voltage differ between recording and playback, the voltage during playback is shown in parenthesis.

- Waveform
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

- SIGNAL PATH
  - ⬅ DRUM SERVO
  - ⇦ CAPSTAN SERVO

COMPARISON CHART OF MODELS & MARKS (*)

REF NO.	MODELS	
	M5EG/EK	M3EG//EK
D312	DAN202U	NONE
R379	0	NONE
C314	0.01	NONE
C318	0.1	NONE



01 MAIN(MECHACON/SERVO)
IC307 S-80748AN-JC
IC306 NM1065GM
IC308 S-8052HNM-CR
IC307 RESET
IC306 REG 5V
IC308 RESET
IC309 UPC1093T
IC305
IC301 SC78146GF-013
Q306 DTC114EU
Q307 2SA1576(QRS)
From REG/MDA
From 12 PROCESS CN23
From 14 REAR CN41
From Y/C
CONTROL HEAD
REC 4.7 Vp-p
PB 2.5 Vp-p
TP101 CTL PULSE
Refer to page 5-45
IC101 BA6405F
IC304 BU4584BF
Refer to page 5-46
R138 PB SW POINT
IC305 BA10339F
From OPERATION (CAMERA)
From OPERATION (DECK)
From JACK
Q301 2SA1576(QRS)
Q308 DTC114EU
IC304
Only use for M5EG/EK
From 07 TALLY CN1
From/To 04 SENSOR
IC304 BU4584BF
S301 CAS SW
IC305 BA10339F
From/To 05 TRIGGER
IC301
Q103 2SC4617(RS)
Q104 2SA1774(RS)
Q304 DTA144TU
IC303 BA6287F
Refer to page 5-46
Q302,Q303 DTA114EU
Q305 DTC114EU
IC302 BU5946AFS
IC310 TC7S04F
C324 FOCUS ZONE POSITION
Refer to page 5-45
To AUDIO
To Y/C
To PRE AMP
NC
To F ERASE
To REG/MDA
To A/C HEAD
From/To 12 PROCESS CN23
To 14 REAR CN41
To 04 SENSOR
To OPERATION (DECK)
Only use for M5EG/EK
To 07 TALLY CN1
To JACK
To E VF
To 12 PROCESS CN23

5.6 AUDIO SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

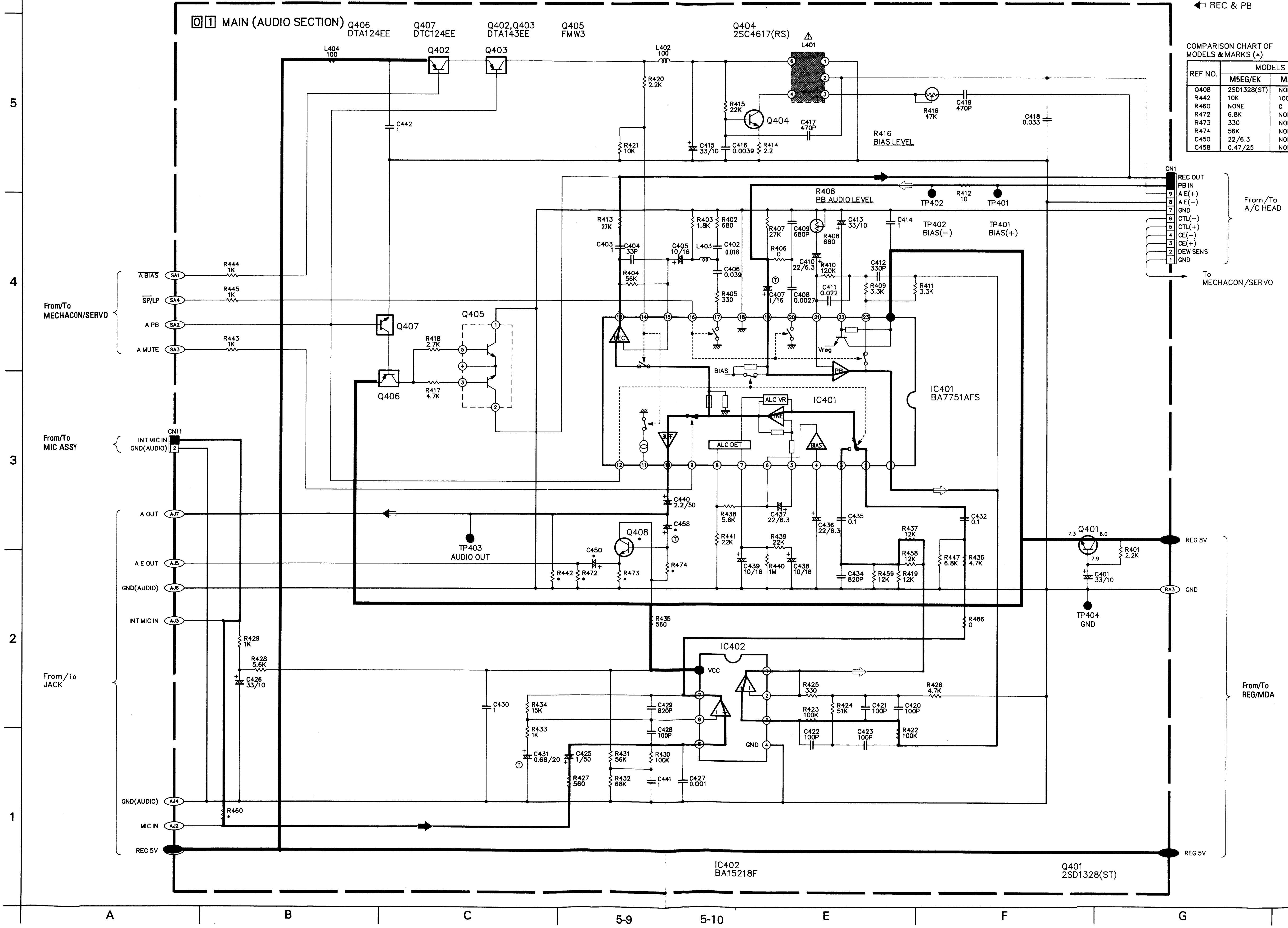
- Voltage/waveform
  REC : EXT input, 1 kHz, –8 dBs,SP mode
  PB : REC then PB

* Where voltage differ between recording and playback, the voltage during playback is shown in parenthesis.

- SIGNAL PATH
  - ⬅ REC
  - ⇦ PB
  - ⬅ REC & PB

COMPARISON CHART OF MODELS & MARKS (∗)

REF NO.	MODELS	
	M5EG/EK	M3EG/EK
Q408	2SD1328(ST)	NONE
R442	10K	100K
R460	NONE	0
R472	6.8K	NONE
R473	330	NONE
R474	56K	NONE
C450	22/6.3	NONE
C458	0.47/25	NONE



01 MAIN (AUDIO SECTION)
Q406 DTA124EE
Q407 DTC124EE
Q402,Q403 DTA143EE
Q405 FMW3
Q404 2SC4617(RS)
L401
L404 100
L402 100
Q402
Q403
R420 2.2K
C442 1
R415 22K
Q404
C417 470P
R416 47K
C419 470P
C418 0.033
R416 BIAS LEVEL
R421 10K
C415 33/10
C416 0.0039
R414 2.2
CN1
REC OUT
PB IN
A E(+)
A E(–)
GND
CTL(–)
CTL(+)
CE(–)
CE(+)
DEW SENS
GND
From/To A/C HEAD
To MECHACON/SERVO
R408 PB AUDIO LEVEL
R412 10
TP402
TP401
TP402 BIAS(–)
TP401 BIAS(+)
R413 27K
C403 1
C404 33P
C405 10/16
L403
R403 1.8K
R402 680
C402 0.018
C406 0.039
R404 56K
R405 330
R407 27K
C409 680P
R408 680
C413 33/10
C414 1
R406 0
C410 22/6.3
R410 120K
C412 330P
C407 1/16
C408 0.0027
C411 0.022
R409 3.3K
R411 3.3K
A BIAS
SP/LP
A PB
A MUTE
SA1
SA4
SA2
SA3
R444 1K
R445 1K
R443 1K
From/To MECHACON/SERVO
Q407
Q405
R418 2.7K
R417 4.7K
Q406
REC
BIAS
Vreg
PB
ALC VR
LINE
IC401
BUF
ALC DET
BIAS
IC401 BA7751AFS
From/To MIC ASSY
CN11
INT MIC IN
GND(AUDIO)
A OUT
A E OUT
GND(AUDIO)
INT MIC IN
AJ7
AJ5
AJ6
AJ3
C440 2.2/50
C458
TP403 AUDIO OUT
Q408
C450
R442
R472
R473
R474
R438 5.6K
C437 22/6.3
R441 22K
R439 22K
C439 10/16
R440 1M
C438 10/16
C436 22/6.3
C435 0.1
R437 12K
R458 12K
C434 820P
R459 12K
R419 12K
R447 6.8K
R436 4.7K
C432 0.1
Q401
7.3
8.0
7.9
R401 2.2K
C401 33/10
TP404 GND
REG 8V
RA3
GND
From/To REG/MDA
R435 560
R486 0
IC402
VCC
GND
R429 1K
R428 5.6K
C426 33/10
C430 1
R434 15K
R433 1K
C431 0.68/20
C425 1/50
R427 560
R431 56K
R432 68K
C429 820P
C428 100P
R430 100K
C441 1
C427 0.001
R425 330
R426 4.7K
R423 100K
R424 51K
C421 100P
C420 100P
C422 100P
C423 100P
R422 100K
From/To JACK
GND(AUDIO)
MIC IN
REG 5V
AJ4
AJ2
R460
REG 5V
IC402 BA15218F
Q401 2SD1328(ST)
6
5
4
3
2
1
A
B
C
D
E
F
G
H

5.7 Y/C SCHEMATIC DIAGRAM

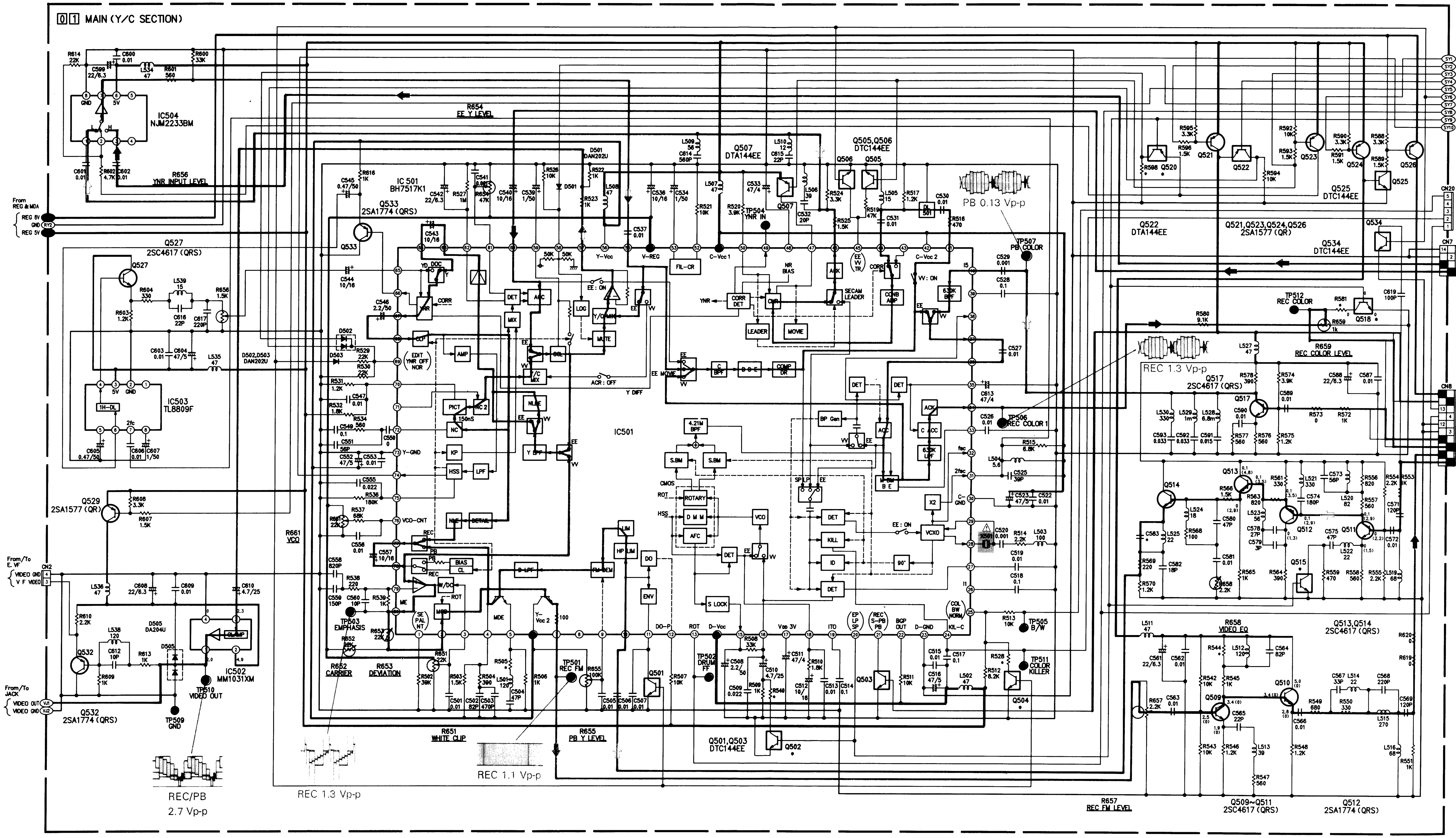
- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

- Voltage
  REC: Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage differ between recording and playback, the voltage during playback is shown in parenthesis.

- Waveform
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

- SIGNAL PATH
  ⬅ REC
  ⇠ PB
  ⬅ REC & PB



01 MAIN (Y/C SECTION)
IC504 NJM2233BM
R654 EE Y LEVEL
R656 YNR INPUT LEVEL
From REG & MDA
REG 8V
GND
REG 5V
Q527 2SC4617 (QRS)
IC503 TL8809F
1H-DL
Q529 2SA1577 (QR)
From/To E. VF
VIDEO GND
V F VIDEO
CN2
From/To JACK
VIDEO OUT
VIDEO GND
Q532 2SA1774 (QRS)
IC502 MM1031XM
CLAMP
TP510 VIDEO OUT
TP509 GND
REC/PB 2.7 Vp-p
IC 501 BH7517K1
Q533 2SA1774 (QRS)
D502,D503 DAN202U
R661 VCO
TP503 EMPHASIS
R652 CARRIER
R653 DEVIATION
R651 WHITE CLIP
TP501 REC FM
R655 PB Y LEVEL
REC 1.3 Vp-p
REC 1.1 Vp-p
IC501
Y DIFF
ACR : OFF
EE : ON
D501 DAN202U
Q507 DTA144EE
TP504 YNR IN
Q505,Q506 DTC144EE
PB 0.13 Vp-p
TP507 PB COLOR
TP512 REC COLOR
R659 REC COLOR LEVEL
REC 1.3 Vp-p
Q517 2SC4617 (QRS)
TP506 REC COLOR 1
TP505 B/W
TP511 COLOR KILLER
TP502 DRUM FF
Q501,Q503 DTC144EE
Q502
Q504
Q522 DTA144EE
Q521,Q523,Q524,Q526 2SA1577 (QR)
Q525 DTC144EE
Q534 DTC144EE
From/To SERVO
V REC
V PB
V EE
EDIT
V ALL MUTE
V PULSE ON
V PULSE
V FF
SP
C SYNC
CN20
C B/W
GND
NC
C KILLER
TP FM
CN7
CAM C GND
CAM Y GND
CAM C IN
CAM Y IN
From/To 1 2 PROCESS CN23
From/To 0 3 PRE/REC
CN8
REC 8V
PB 5V
TP FM
V FF
V GND
V GND
PB COL
REC COL
REC FM
PB FM
R658 VIDEO EQ
Q513,Q514 2SC4617 (QRS)
R657 REC FM LEVEL
Q509~Q511 2SC4617 (QRS)
Q512 2SA1774 (QRS)

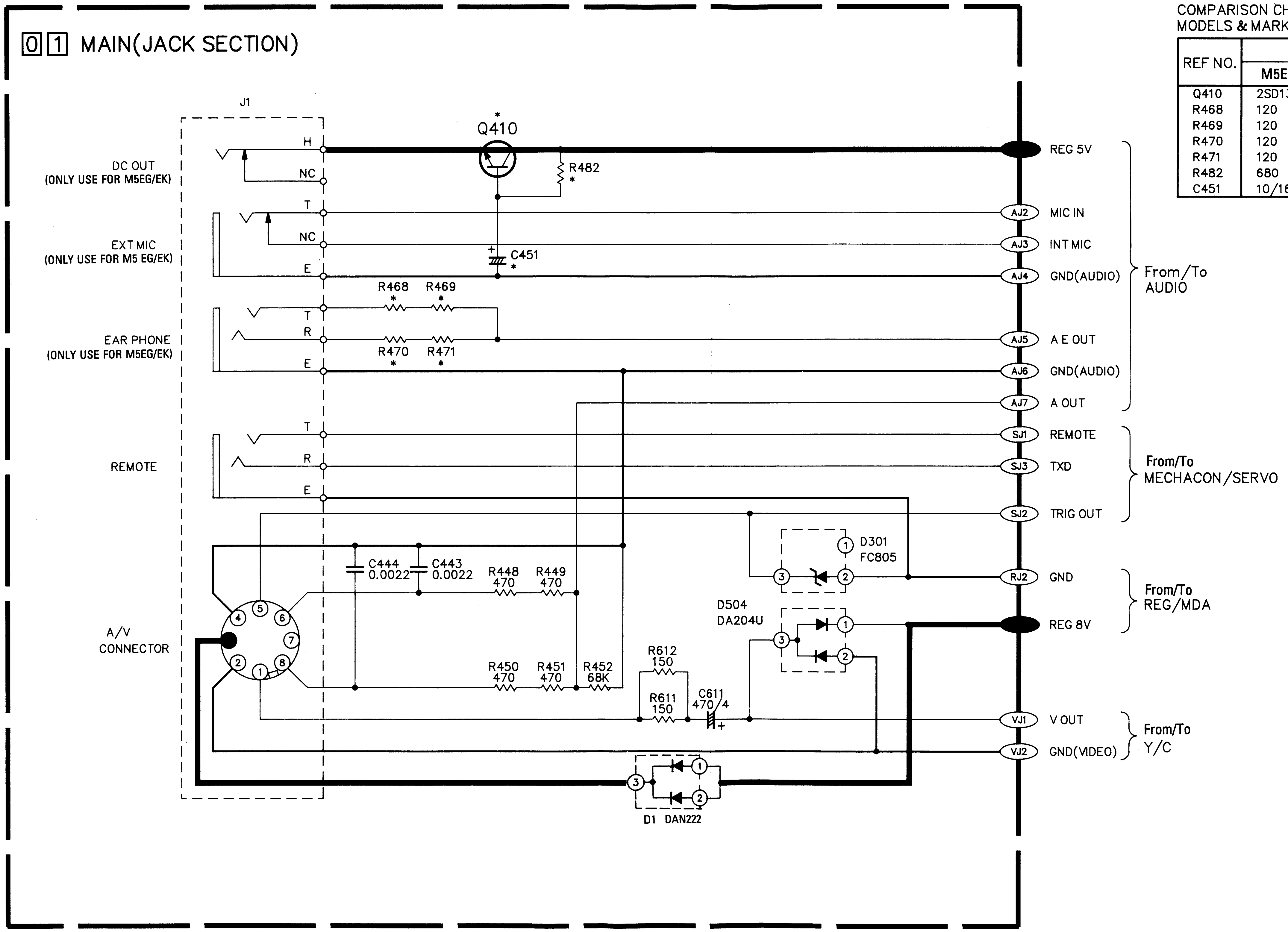
COMPARSION CHART OF MODELS & MARKS (•)

REF NO.	MODELS			
	M3EG	M3EK	M5EG	M5EK
Q502	NONE	DTC144EE	NONE	DTC144EE
Q504	NONE	DTC144EE	NONE	DTC144EE
Q515	NONE	DTC144EE	NONE	DTC144EE
Q518	NONE	DTC144EE	NONE	DTC144EE
Q520	NONE	DTA144EE	NONE	DTA144EE

REF NO.	MODELS			
	M3EG	M3EK	M5EG	M5EK
R505	3.3K	NONE	3.3K	NONE
R528	NONE	10K	NONE	10K
R540	NONE	1.5K	NONE	1.5K
R544	470	390	470	390
R581	NONE	10K	NONE	10K

REF NO.	MODELS			
	M3EG	M3EK	M5EG	M5EK
R598	NONE	10K	NONE	10K
C583	18P	22P	18P	22P

5.8 JACK SCHEMATIC DIAGRAM

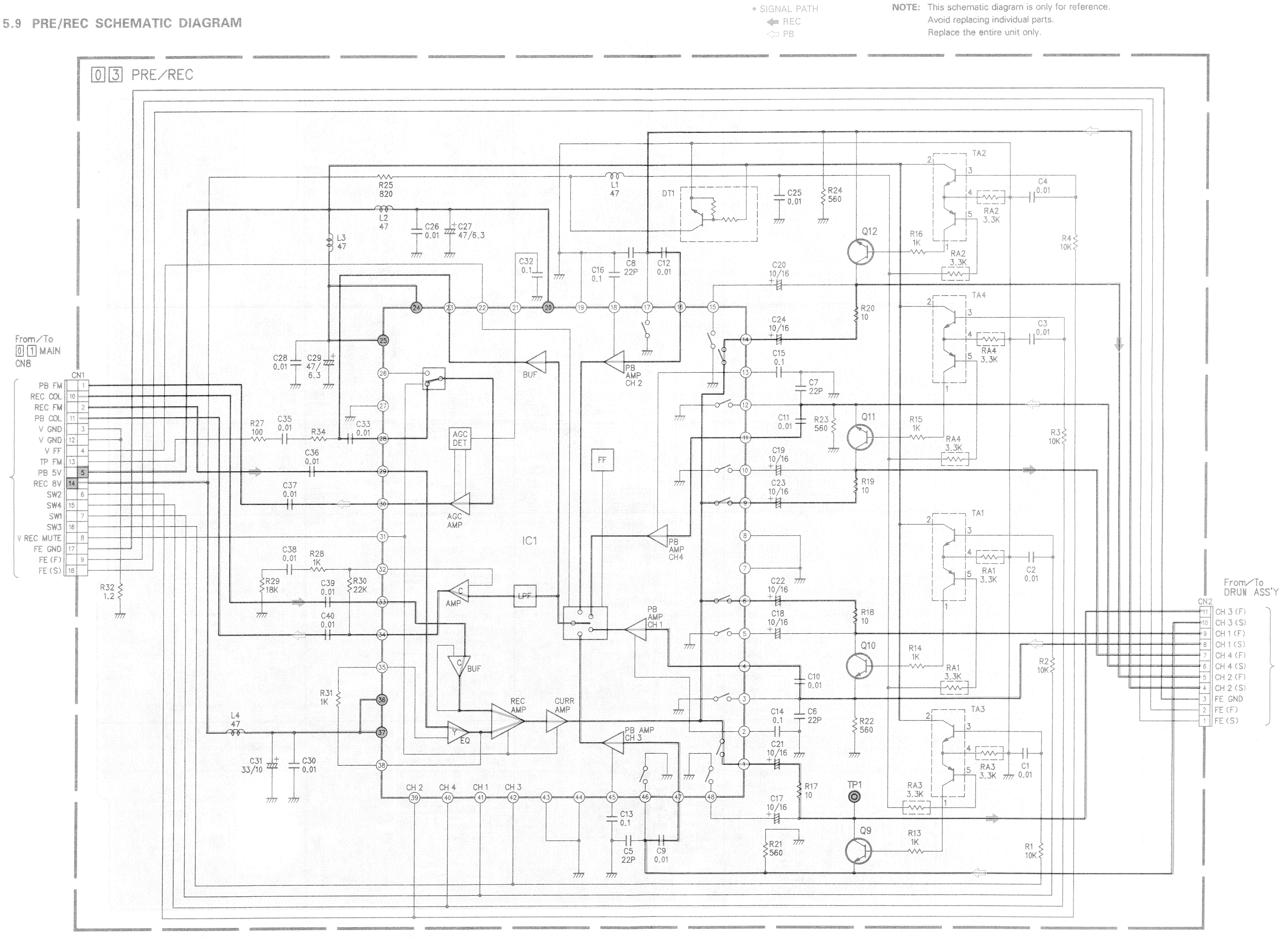

0 1 MAIN(JACK SECTION)
J1
DC OUT
(ONLY USE FOR M5EG/EK)
H
NC
EXT MIC
(ONLY USE FOR M5 EG/EK)
T
NC
E
EAR PHONE
(ONLY USE FOR M5EG/EK)
T
R
E
REMOTE
T
R
E
A/V
CONNECTOR
1
2
4
5
6
7
8
*
Q410
R482
*
C451
*
R468
*
R469
*
R470
*
R471
*
C444
0.0022
C443
0.0022
R448
470
R449
470
R450
470
R451
470
R452
68K
R612
150
R611
150
C611
470/4
D301
FC805
D504
DA204U
D1 DAN222
REG 5V
AJ2
MIC IN
AJ3
INT MIC
AJ4
GND(AUDIO)
AJ5
A E OUT
AJ6
GND(AUDIO)
AJ7
A OUT
From/To
AUDIO
SJ1
REMOTE
SJ3
TXD
SJ2
TRIG OUT
From/To
MECHACON/SERVO
RJ2
GND
REG 8V
From/To
REG/MDA
VJ1
V OUT
VJ2
GND(VIDEO)
From/To
Y/C

COMPARISON CHART OF
MODELS & MARKS (*)

REF NO.	MODELS	
	M5EG/EK	M3EG/EK
Q410	2SD1328(ST)	NONE
R468	120	NONE
R469	120	NONE
R470	120	NONE
R471	120	NONE
R482	680	NONE
C451	10/16	NONE

5.9 PRE/REC SCHEMATIC DIAGRAM

NOTE: This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

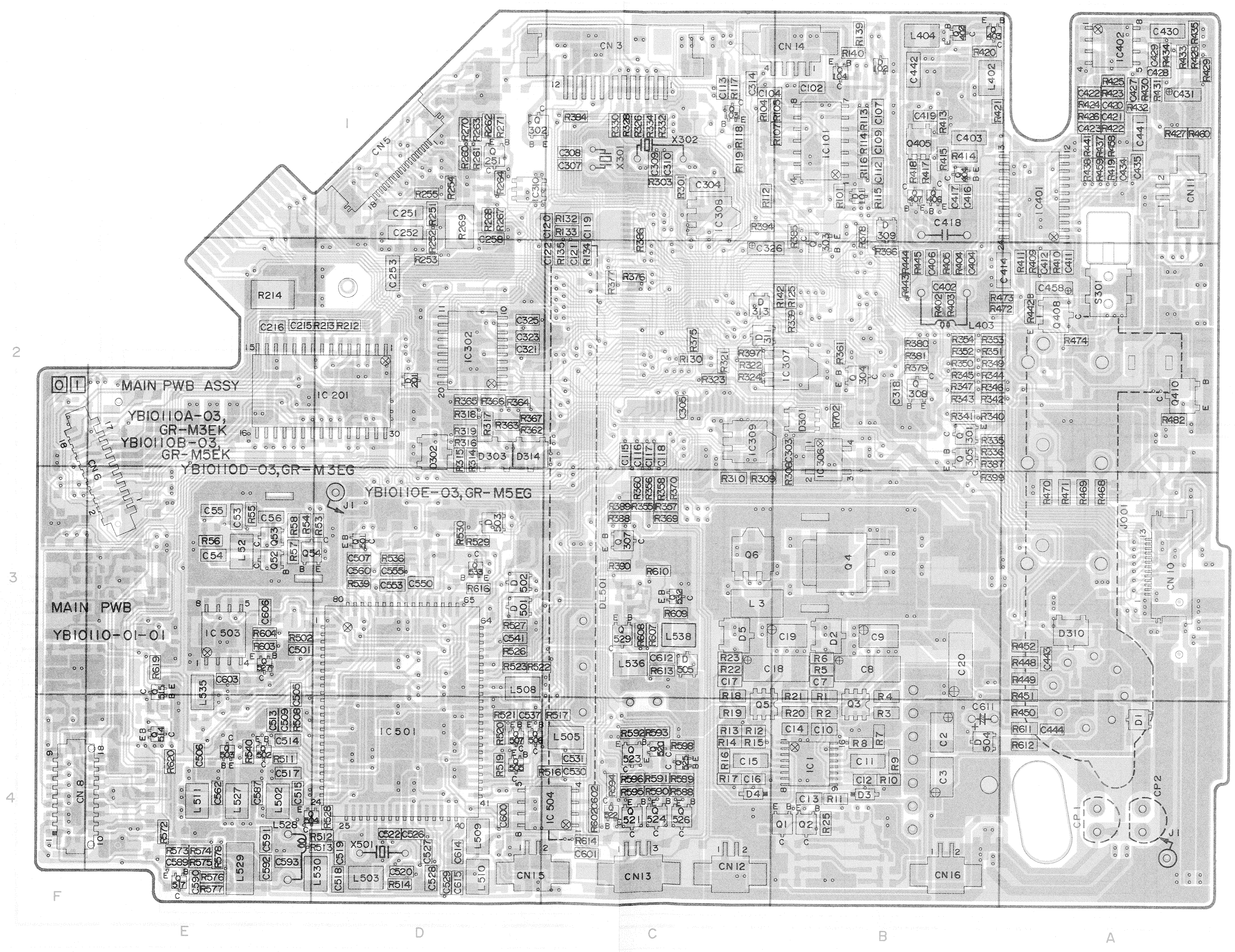


• SIGNAL PATH
REC
PB
03 PRE/REC
From/To
01 MAIN
CN8
CN1
PB FM 1
REC COL 10
REC FM 2
PB COL 11
V GND 3
V GND 12
V FF 4
TP FM 13
PB 5V 5
REC 8V 14
SW2 6
SW4 15
SW1 7
SW3 16
V REC MUTE 8
FE GND 17
FE (F) 9
FE (S) 18
R32 1.2
R25 820
L2 47
L3 47
C26 0.01
C27 47/6.3
L1 47
DT1
C25 0.01
R24 560
C32 0.1
C16 0.1
C8 22P
C12 0.01
C28 0.01
C29 47/6.3
R27 100
C35 0.01
R34
C33 0.01
C36 0.01
C37 0.01
C38 0.01
R28 1K
R29 18K
C39 0.01
R30 22K
C40 0.01
R31 1K
L4 47
C31 33/10
C30 0.01
BUF
PB AMP CH 2
AGC DET
AGC AMP
IC1
FF
PB AMP CH4
C AMP
LPF
PB AMP CH 1
C BUF
REC AMP
CURR AMP
Y EQ
PB AMP CH 3
CH 2
CH 4
CH 1
CH 3
C13 0.1
C5 22P
C9 0.01
R21 560
C20 10/16
C24 10/16
C15 0.1
C7 22P
C11 0.01
R23 560
C19 10/16
C23 10/16
C22 10/16
C18 10/16
C10 0.01
C14 0.1
C6 22P
C21 10/16
C17 10/16
R20 10
R19 10
R18 10
R22 560
R17 10
TP1
Q12
Q11
Q10
Q9
R16 1K
R15 1K
R14 1K
R13 1K
RA2 3.3K
RA4 3.3K
RA1 3.3K
RA3 3.3K
TA2
TA4
TA1
TA3
C4 0.01
C3 0.01
C2 0.01
C1 0.01
R4 10K
R3 10K
R2 10K
R1 10K
From/To
DRUM ASS'Y
CN2
CH 3 (F) 11
CH 3 (S) 10
CH 1 (F) 9
CH 1 (S) 8
CH 4 (F) 7
CH 4 (S) 6
CH 2 (F) 5
CH 2 (S) 4
FE GND 3
FE (F) 2
FE (S) 1

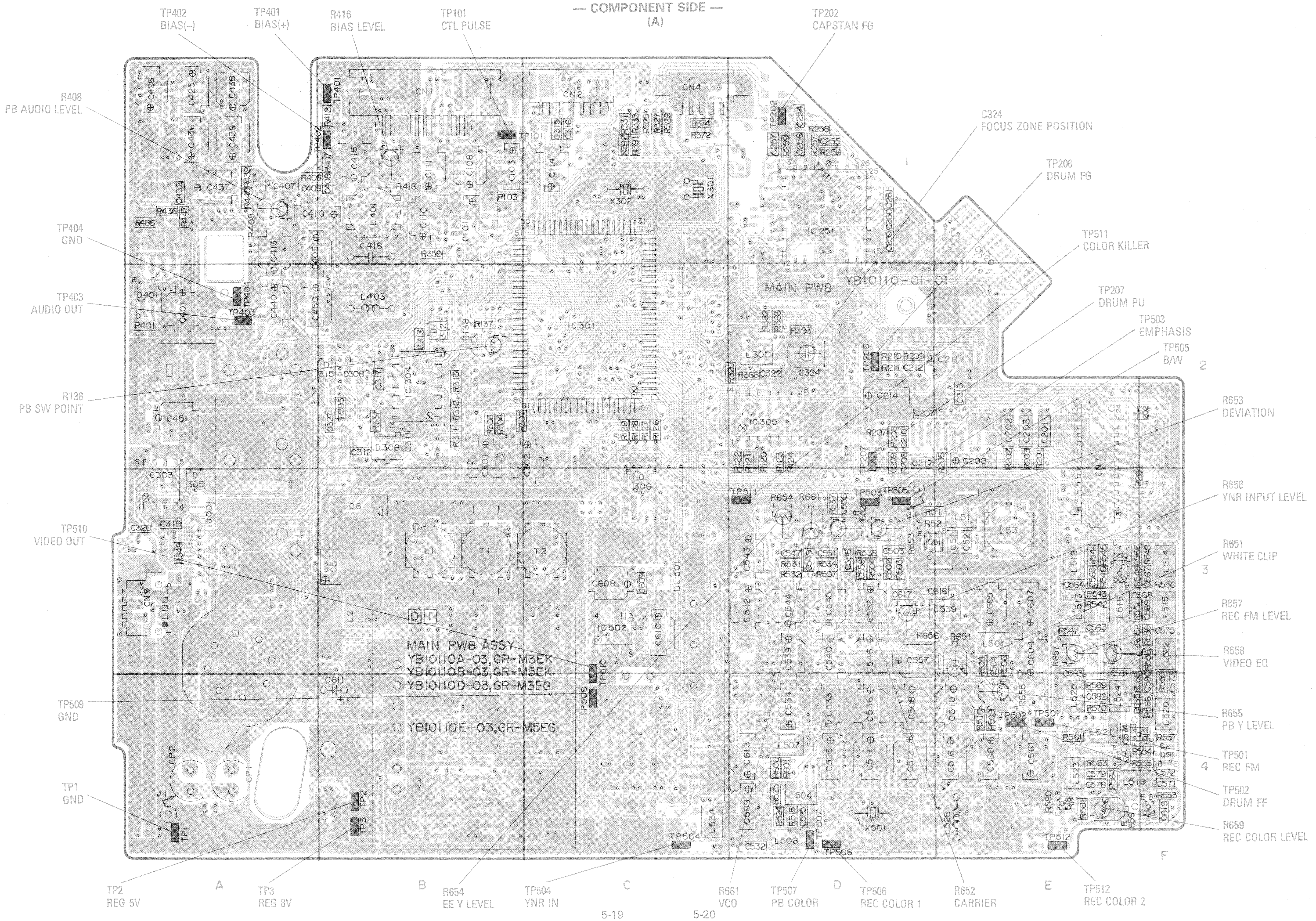
6
5
4
3
2
1
A
B
C
E
F
G
H

5.10 MAIN CIRCUIT BOARD

— CONDUCTOR SIDE —
(B)


MAIN PWB ASSY
YB10110A-03, GR-M3EK
YB10110B-03, GR-M5EK
YB10110D-03, GR-M3EG
YB10110E-03, GR-M5EG
MAIN PWB
YB10110-01-01
CN3
CN5
CN6
CN8
CN10
CN11
CN12
CN13
CN14
CN15
CN16
IC1
IC101
IC201
IC302
IC307
IC308
IC401
IC402
IC501
IC503
IC504
Q4
Q6
L3
L404
L402
L403
S301
X301
X302
X501
DL501
J1
CP1
CP2
1
2
3
4
A
B
C
D
E
F

— COMPONENT SIDE —
(A)


TP402
BIAS(–)
TP401
BIAS(+)
R416
BIAS LEVEL
TP101
CTL PULSE
TP202
CAPSTAN FG
R408
PB AUDIO LEVEL
C324
FOCUS ZONE POSITION
TP206
DRUM FG
TP404
GND
TP511
COLOR KILLER
TP403
AUDIO OUT
TP207
DRUM PU
TP503
EMPHASIS
TP505
B/W
R138
PB SW POINT
R653
DEVIATION
R656
YNR INPUT LEVEL
TP510
VIDEO OUT
R651
WHITE CLIP
R657
REC FM LEVEL
R658
VIDEO EQ
TP509
GND
R655
PB Y LEVEL
TP501
REC FM
TP1
GND
TP502
DRUM FF
R659
REC COLOR LEVEL
TP2
REG 5V
TP3
REG 8V
R654
EE Y LEVEL
TP504
YNR IN
R661
VCO
TP507
PB COLOR
TP506
REC COLOR 1
R652
CARRIER
TP512
REC COLOR 2
MAIN PWB YB10110-01-01
MAIN PWB ASSY
YB10110A-03,GR-M3EK
YB10110B-03,GR-M5EK
YB10110D-03,GR-M3EG
YB10110E-03,GR-M5EG
IC301
IC251
IC304
IC305
IC303
IC502
A
B
C
D
E
F
1
2
3
4

- Location of SMC parts A-1D

A-1D
1D — Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-4B
IC101	B-1B
IC201	B-2D
IC251	A-1D
IC301	A-2C
IC302	B-2D
IC303	A-3A
IC304	A-2B
IC305	A-2D
IC306	B-2B
IC307	B-2B
IC308	B-1C
IC309	B-2C
IC310	B-1D
IC401	B-1A
IC402	B-1A
IC501	B-4D
IC502	A-3C
IC503	B-3E
IC504	B-4C

REF. No.	LOCATION
TRANSISTOR	
Q1	B-4B
Q2	B-4B
Q3	B-4B
Q4	B-3B
Q5	B-4C
Q6	B-3C
Q51	A-3D
Q52	B-3E
Q53	B-3E
Q54	B-3E
Q103	B-1C
Q104	B-1B
Q251	B-1D
Q301	B-2B
Q302	B-1D
Q303	B-2B
Q304	B-2B
Q305	B-2B
Q306	A-3C
Q307	B-3C
Q308	B-2B
Q401	A-2A
Q402	B-1B
Q403	B-1B
Q404	B-1B
Q405	B-1B
Q406	B-1B
Q407	B-1B
Q408	B-2A
Q410	B-2A
Q501	B-3D
Q502	B-4E
Q503	B-4E
Q504	B-4E
Q505	B-4D
Q506	B-4D
Q507	B-4D
Q509	A-3E
Q510	A-3E
Q511	A-4F
Q512	A-4E
Q513	A-4F
Q514	B-4E
Q515	B-3E
Q517	B-4E
Q518	A-4E
Q520	B-4C
Q521	B-4C
Q522	B-4C
Q523	B-4C
Q524	B-4C

REF. No.	LOCATION
TRANSISTOR	
Q525	B-4C
Q525	B-4C
Q526	B-4C
Q527	B-3E
Q529	B-3C
Q532	B-3C
Q533	B-3D
Q534	A-4F

REF. No.	LOCATION
DIODE	
D1	B-4A
D2	B-3B
D3	B-4B
D4	B-4C
D5	B-3C
D101	B-1B
D102	B-1B
D201	B-2D
D202	A-2F
D301	B-2B
D302	B-2D
D303	B-2D
D305	A-3A
D306	A-2B
D308	A-2B
D309	B-1B
D310	B-3A
D311	B-2C
D312	A-2B
D313	B-2C
D314	B-2D
D315	A-2B
D501	B-3D
D502	B-3D
D503	B-3D
D504	B-4B
D505	B-3C

REF. No.	LOCATION
RESISTOR	
R1	B-3B
R2	B-4B
R3	B-4B
R4	B-3B
R5	B-3B
R6	B-3B
R7	B-4B
R8	B-4B
R9	B-4B
R10	B-4B
R11	B-4B
R12	B-4C
R13	B-4C
R14	B-4C
R15	B-4C
R16	B-4C
R17	B-4C
R18	B-3C
R19	B-4C
R20	B-4B
R21	B-3B
R22	B-3C
R23	B-3C
R25	B-4B
R51	A-3D
R52	A-3D
R53	B-3D
R54	B-3E
R55	B-3E

REF. No.	LOCATION
RESISTOR	
R56	B-3E
R57	B-3E
R58	B-3E
R101	B-1B
R103	A-1B
R104	B-1C
R105	B-1B
R107	B-1B
R112	B-1C
R113	B-1B
R114	B-1B
R115	B-1B
R116	B-1B
R117	B-1C
R118	B-1C
R119	B-1C
R120	A-2D
R121	A-2D
R122	A-2D
R123	A-2D
R124	A-2D
R125	B-2B
R126	A-2C
R127	A-2C
R128	A-2C
R129	A-2C
R130	B-2C
R132	B-1C
R133	B-1C
R134	B-2C
R135	B-2C
R137	A-2B
R138	A-2B
R139	B-1C
R140	B-1C
R142	B-2B
R201	A-2E
R202	A-2E
R203	A-2E
R204	A-3E
R205	A-2E
R206	A-2D
R207	A-2D
R208	A-2D
R209	A-2D
R210	A-2D
R211	A-2D
R212	B-2D
R213	B-2D
R214	B-2E
R251	B-1D
R252	B-1D
R253	B-2D
R254	B-1D
R255	B-1D
R256	A-1D
R257	A-1D
R258	A-1D
R259	A-1D
R260	B-1D
R261	B-1D
R262	B-1D
R263	B-1D
R264	B-1D
R267	B-1D
R268	B-1D
R269	B-1D
R270	B-1D
R271	B-1D
R301	B-1C
R303	B-1C
R304	A-2B
R306	A-2B
R307	A-2B
R308	B-3B
R309	B-3C
R310	B-3C
R311	A-2B

REF. No.	LOCATION
RESISTOR	
R312	A-2B
R313	A-2B
R314	B-2D
R315	B-2D
R316	B-2D
R317	B-2D
R318	B-2D
R319	B-2D
R320	A-2D
R321	B-2C
R322	B-2C
R323	B-2C
R324	B-2C
R325	A-1C
R326	B-1C
R327	A-1C
R328	B-1C
R329	A-1C
R330	B-1C
R331	A-1C
R332	B-1C
R333	A-1C
R334	B-1C
R335	B-2B
R336	B-2B
R337	A-2B
R339	B-2B
R340	B-2B
R341	B-2B
R342	B-2B
R343	B-2B
R344	B-2B
R345	B-2B
R346	B-2B
R347	B-2B
R348	A-3A
R349	B-2B
R350	B-2B
R351	B-2B
R352	B-2B
R353	B-2B
R354	B-2B
R355	B-3C
R356	B-3C
R357	B-3C
R358	B-3C
R359	A-1B
R360	B-3C
R361	B-2B
R362	B-2D
R363	B-2D
R364	B-2D
R365	B-2D
R366	B-2D
R367	B-2D
R368	A-2D
R369	B-3C
R370	B-3C
R372	A-1C
R374	A-1C
R375	B-2C
R376	B-2C
R377	B-2C
R378	B-1B
R379	B-2B
R380	B-2B
R381	B-2B
R382	A-2D
R383	A-2D
R384	B-1C
R385	B-1B
R386	B-1C
R387	B-2B
R388	B-3C
R389	B-3C
R390	B-3C
R391	A-1C
R392	A-1C

REF. No.	LOCATION
RESISTOR	
R393	A-2D
R394	B-1C
R395	A-2B
R396	B-2B
R397	B-2C
R399	B-3B
R401	A-2A
R402	B-2B
R403	B-2B
R404	B-2B
R405	B-2B
R406	A-1A
R407	A-1B
R408	A-1A
R409	B-2A
R410	B-2A
R411	B-2A
R412	A-1B
R413	B-1B
R414	B-1B
R415	B-1B
R416	A-1B
R417	B-1B
R418	B-1B
R420	B-1B
R421	B-1B
R422	B-1A
R423	B-1A
R424	B-1A
R425	B-1A
R426	B-1A
R427	B-1A
R428	B-1A
R429	B-1A
R430	B-1A
R431	B-1A
R432	B-1A
R433	B-1A
R434	B-1A
R435	B-1A
R436	A-1A
R437	B-1A
R438	B-1A
R439	A-1A
R440	A-1A
R441	B-1A
R442	B-2A
R442	B-1A
R443	B-2B
R444	B-2B
R445	B-2B
R447	A-1A
R448	B-3A
R449	B-3A
R450	B-4A
R451	B-3A
R452	B-3A
R458	B-1A
R459	B-1A
R460	B-1A
R468	B-3A
R469	B-3A
R470	B-3A
R471	B-3A
R472	B-2A
R473	B-2A
R474	B-2A
R482	B-2A
R486	A-1A
R502	B-3E
R503	A-3D
R504	A-3D
R505	A-3E
R506	A-3E
R507	A-3D
R508	B-4E
R509	A-4E
R510	A-4E

REF. No.	LOCATION
RESISTOR	
R511	B-4E
R512	B-4D
R513	B-4D
R514	B-4D
R515	A-4D
R516	B-4C
R517	B-4C
R519	B-4D
R520	B-4D
R521	B-4D
R522	B-3D
R523	B-3D
R524	A-4D
R525	A-4D
R526	B-3D
R527	B-3D
R528	B-4D
R529	B-3D
R530	B-3D
R531	A-3D
R532	A-3D
R534	A-3D
R536	B-3D
R537	A-3D
R538	A-3D
R539	B-3D
R540	B-4E
R542	A-3E
R543	A-3E
R544	A-3E
R544	A-3E
R545	A-3E
R546	A-3E
R547	A-3E
R548	A-3F
R549	A-3E
R550	A-3F
R551	A-3E
R553	A-4F
R554	A-4F
R555	A-4F
R556	A-4F
R557	A-4F
R558	A-3F
R559	A-3F
R561	A-4E
R563	A-4E
R564	A-4E
R565	A-4E
R566	A-4F
R568	A-4E
R569	A-4E
R570	A-4E
R572	B-4E
R573	B-4E
R574	B-4E
R575	B-4E
R576	B-4E
R577	B-4E
R578	B-4E
R580	A-4E
R581	A-4E
R588	B-4C
R589	B-4C
R590	B-4C
R591	B-4C
R592	B-4C
R593	B-4C
R594	B-4C
R595	B-4C
R596	B-4C
R598	B-4C
R600	A-4D
R601	A-4D
R602	B-4C
R603	B-3E
R604	B-3E
R607	B-3C

REF. No.	LOCATION
RESISTOR	
R608	B-3C
R609	B-3C
R610	B-3C
R611	B-4A
R612	B-4A
R613	B-3C
R614	B-4C
R616	B-3D
R619	B-3E
R620	B-4E
R651	A-3E
R652	A-3D
R653	A-3D
R654	A-3D
R655	A-4E
R656	A-3D
R657	A-3E
R658	A-3E
R659	A-4E
R661	A-3D
R702	B-2B

REF. No.	LOCATION
CAPACITOR	
C2	B-4B
C3	B-4B
C5	A-3B
C6	A-3B
C7	B-3B
C8	B-3B
C9	B-3B
C10	B-4B
C11	B-4B
C12	B-4B
C13	B-4B
C14	B-4B
C15	B-4C
C16	B-4C
C17	B-3C
C18	B-3B
C19	B-3B
C20	B-3B
C51	A-3E
C52	A-3E
C53	B-3E
C54	B-3E
C55	B-3E
C56	B-3E
C101	A-1B
C102	B-1B
C103	A-1B
C104	B-1C
C107	B-1B
C108	A-1B
C109	B-1B
C110	A-1B
C111	A-1B
C112	B-1B
C113	B-1C
C114	A-1C
C115	B-2C
C116	B-2C
C117	B-2C
C118	B-2C
C119	B-1C
C120	B-1C
C121	B-2C
C122	B-2C
C201	A-2E
C202	A-2E
C203	A-2E
C207	A-2D
C208	A-2E
C209	A-2D

REF. No.	LOCATION
CAPACITOR	
C210	A-2D
C211	A-2E
C212	A-2D
C213	A-2E
C214	A-2D
C215	B-2E
C216	B-2E
C217	A-2D
C251	B-1D
C252	B-1D
C253	B-2D
C254	A-1D
C255	A-1D
C256	A-1D
C257	A-1D
C258	B-1D
C259	A-1D
C260	A-1D
C261	A-1D
C301	A-2B
C302	A-2B
C303	B-2B
C304	B-1C
C305	B-2C
C307	B-1C
C308	B-1C
C309	B-1C
C310	B-1C
C311	A-2B
C312	A-2B
C313	A-2B
C314	B-1C
C315	A-1C
C316	A-1C
C317	A-2B
C318	B-2B
C319	A-3A
C320	A-3A
C321	B-2D
C322	A-2D
C323	B-2D
C324	A-2D
C325	B-2D
C326	B-2C
C327	A-2B
C401	A-2A
C402	B-2B
C403	B-1B
C404	B-2B
C405	A-1A
C406	B-2B
C407	A-1A
C408	A-1A
C409	A-1B
C410	A-1A
C411	B-2A
C412	B-2A
C413	A-1A
C414	B-2A
C415	A-1B
C416	B-1B
C417	B-1B
C419	B-1B
C420	B-1A
C421	B-1A
C422	B-1A
C423	B-1A
C425	A-1A
C426	A-1A
C427	B-1A
C428	B-1A
C429	B-1A
C430	B-1A
C431	B-1A
C432	A-1A
C434	B-1A
C435	B-1A
C436	A-1A

REF. No.	LOCATION
CAPACITOR	
C437	A-1A
C438	A-1A
C439	A-1A
C440	A-2A
C441	B-1A
C442	B-1B
C443	B-3A
C444	B-4A
C450	A-2A
C451	A-2A
C458	B-2A
C501	B-3E
C502	A-3D
C503	A-3D
C504	A-3E
C505	B-4E
C506	B-4E
C507	B-3D
C508	A-4D
C509	B-4E
C510	A-4E
C511	A-4D
C512	A-4D
C513	B-4E
C514	B-4E
C515	B-4E
C516	A-4E
C517	B-4E
C518	B-4D
C519	B-4D
C520	B-4D
C522	B-4D
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C525	A-4D
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C530	B-4C
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C532	A-4D
C533	A-4D
C534	A-4D
C536	A-4D
C537	B-4D
C539	A-3D
C540	A-3D
C541	B-3D
C542	A-3D
C543	A-3D
C544	A-3D
C545	A-3D
C546	A-3D
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C557	A-3D
C558	A-3D
C559	A-3D
C560	B-3D
C561	A-4E
C562	B-4E
C563	A-3E
C564	A-3E
C565	A-3E
C566	A-3E
C567	A-3F
C568	A-3F
C569	A-3F
C571	A-4F
C572	A-4F
C573	A-4F
C574	A-4E

REF. No.	LOCATION
CAPACITOR	
C575	A-3F
C578	A-4E
C579	A-4E
C580	A-4F
C581	A-4E
C582	A-4E
C583	A-4E
C587	B-4E
C588	A-4E
C589	B-4E
C590	B-4E
C591	B-4E
C592	B-4E
C593	B-4E
C599	A-4D
C600	B-4D
C601	B-4C
C602	B-4C
C603	B-3E
C604	A-3E
C605	A-3E
C606	B-3E
C607	A-3E
C608	A-3C
C609	A-3C
C610	A-3C
C612	B-3C
C613	A-4D
C614	B-4D
C615	B-4D
C616	A-3E
C617	A-3D
C619	A-4F

REF. No.	LOCATION
COIL	
L1	A-3B
L2	A-3B
L3	B-3C
L51	A-3E
L52	B-3E
L53	A-3E
L301	A-2D
L401	A-1B
L402	B-1B
L404	B-1B
L501	A-3E
L502	B-4E
L503	B-4D
L504	A-4D
L505	B-4C
L506	A-4D
L507	A-4D
L508	B-3D
L509	B-4D
L510	B-4D
L511	B-4E
L512	A-3E
L513	A-3E
L514	A-3F
L515	A-3F
L516	A-3E
L519	A-4E
L520	A-4F
L521	A-4E
L522	A-3F
L523	A-4E
L524	A-4E
L525	A-4E
L527	B-4E
L529	B-4E
L530	B-4D
L534	A-4C
L535	B-3E

REF. No.	LOCATION
COIL	
L536	B-3C
L538	B-3C
L539	A-3E

REF. No.	LOCATION
SWITCH	
S301	B-2A

REF. No.	LOCATION
SW TRANS	
T1	A-3B
T2	A-3C

REF. No.	LOCATION
TESP PIN	
TP1	A-4A
TP2	A-4B
TP3	A-4B
TP101	A-1B
TP202	A-1D
TP206	A-2D
TP207	A-2D
TP401	A-1B
TP402	A-1B
TP403	A-2A
TP404	A-2A
TP501	A-4E
TP502	A-4E
TP503	A-3D
TP504	A-4C
TP505	A-3D
TP506	A-4D
TP507	A-4D
TP509	A-4C
TP510	A-4C
TP511	A-3D
TP512	A-4E

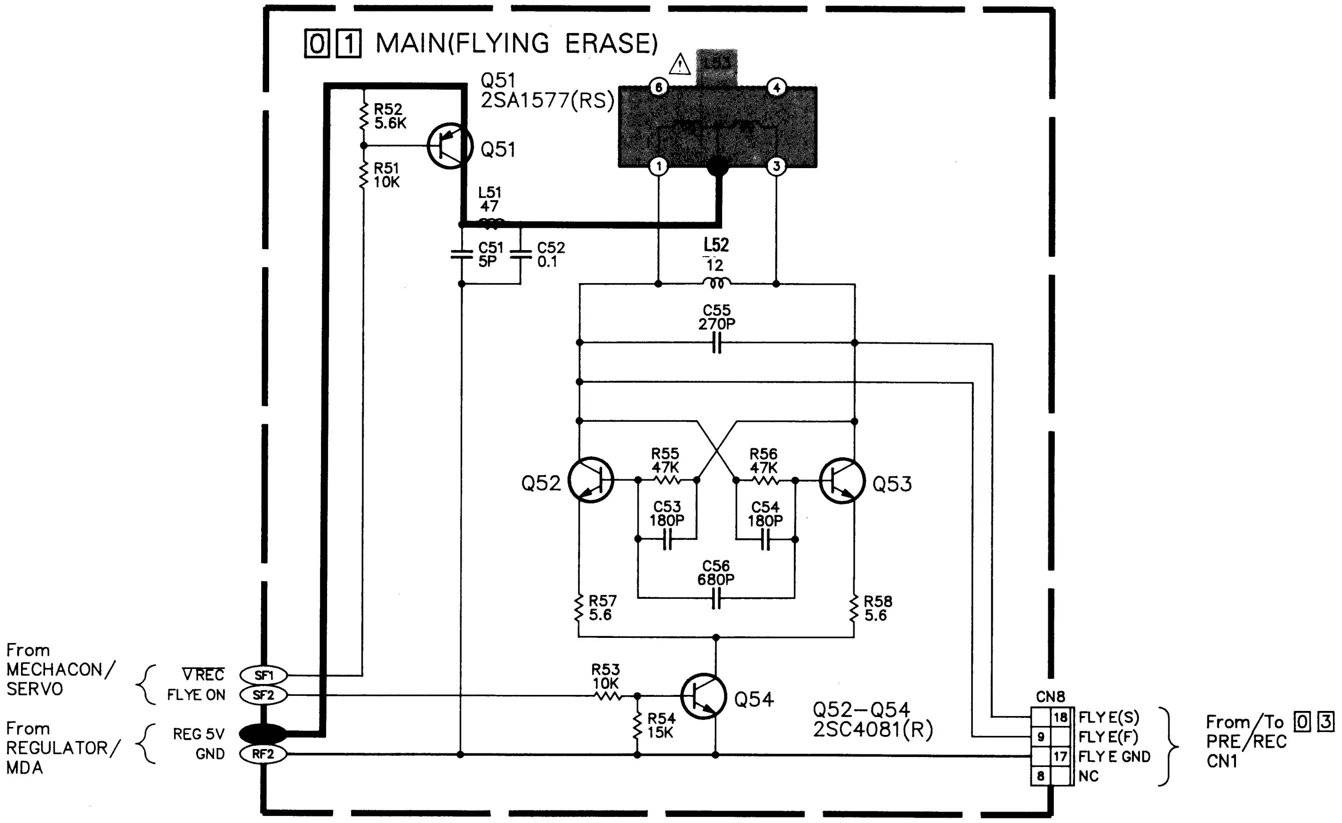
REF. No.	LOCATION
CONNECTOR	
CN1	A-1B
CN2	A-1C
CN3	B-1C
CN4	A-1C
CN5	B-1D
CN6	B-3E
CN7	A-2E
CN8	B-4F
CN9	A-3A
CN10	B-3A
CN11	B-1A
CN12	B-4C
CN13	B-4C
CN14	B-1B
CN15	B-4D
CN16	B-4B

*EXCHANGE PARTS LIST

Symbol	GR-M3EG	GR-M3EK	GR-M5EG	GR-M5EK
Q408	NOT USED	NOT USED	USED	USED
Q410	NOT USED	NOT USED	USED	USED
Q502	NOT USED	USED	NOT USED	USED
Q504	NOT USED	USED	NOT USED	USED
Q515	NOT USED	USED	NOT USED	USED
Q518	NOT USED	USED	NOT USED	USED
Q520	NOT USED	USED	NOT USED	USED
D312	NOT USED	NOT USED	USED	USED
R306	USED	NOT USED	USED	NOT USED
R307	NOT USED	USED	NOT USED	USED
R379	NOT USED	NOT USED	USED	USED
R460	USED	USED	NOT USED	NOT USED
R468	NOT USED	NOT USED	USED	USED
R469	NOT USED	NOT USED	USED	USED
R470	NOT USED	NOT USED	USED	USED
R471	NOT USED	NOT USED	USED	USED
R472	NOT USED	NOT USED	USED	USED
R473	NOT USED	NOT USED	USED	USED
R474	NOT USED	NOT USED	USED	USED
R482	NOT USED	NOT USED	USED	USED
R505	USED	NOT USED	USED	NOT USED
R528	NOT USED	USED	NOT USED	USED
R540	NOT USED	USED	NOT USED	USED
R581	NOT USED	USED	NOT USED	USED
R598	NOT USED	USED	NOT USED	USED
C314	NOT USED	NOT USED	USED	USED
C318	NOT USED	NOT USED	USED	USED
C450	NOT USED	NOT USED	USED	USED
C451	NOT USED	NOT USED	USED	USED
C458	NOT USED	NOT USED	USED	USED
CN14	NOT USED	NOT USED	USED	USED

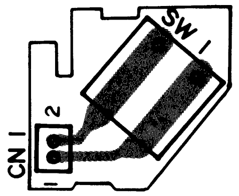
5.11 FLYING ERASE SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.


01 MAIN(FLYING ERASE)
⚠ L53
Q51
2SA1577(RS)
R52
5.6K
R51
10K
Q51
L51
47
C51
5P
C52
0.1
L52
12
C55
270P
R55
47K
R56
47K
Q52
Q53
C53
180P
C54
180P
C56
680P
R57
5.6
R58
5.6
R53
10K
R54
15K
Q54
Q52–Q54
2SC4081(R)
From MECHACON/SERVO
VREC
FLYE ON
SF1
SF2
From REGULATOR/MDA
REG 5V
GND
RF2
CN8
18 FLYE(S)
9 FLYE(F)
17 FLYE GND
8 NC
From/To 03 PRE/REC CN1

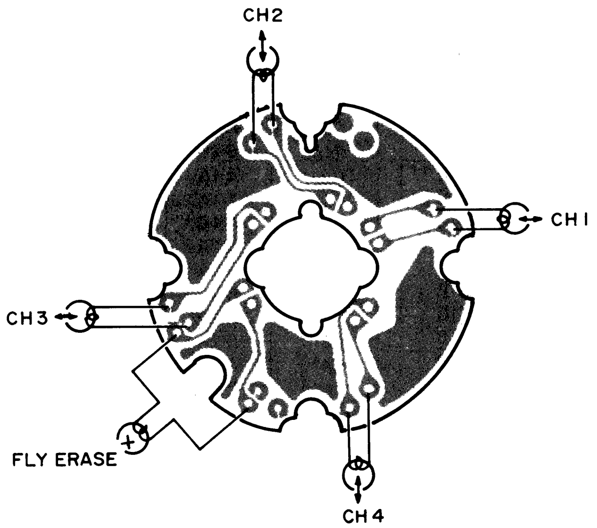
5.12 TRIGGER & UPPER DRUM CIRCUIT BOARD

— TRIGGER —



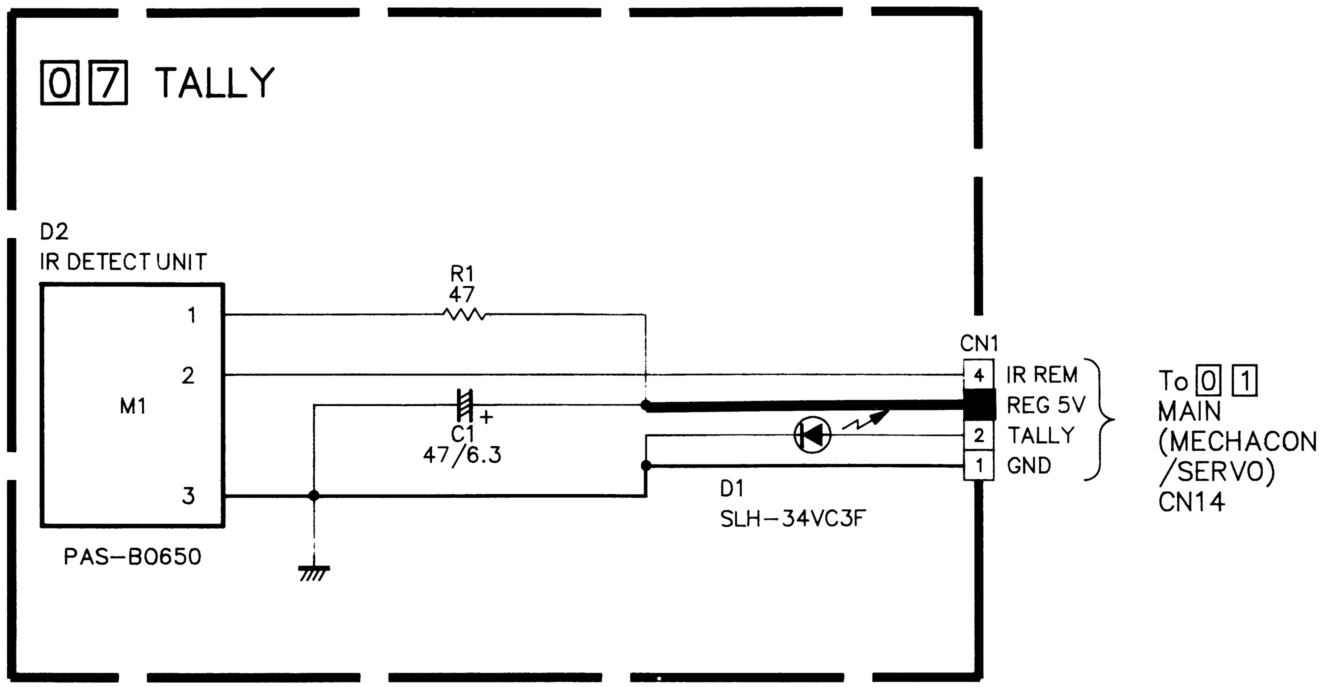
05 TRIGGER PWB ASSY	YB20360B
TRIGGER PWB	YB20360-01-01

— UPPER DRUM —

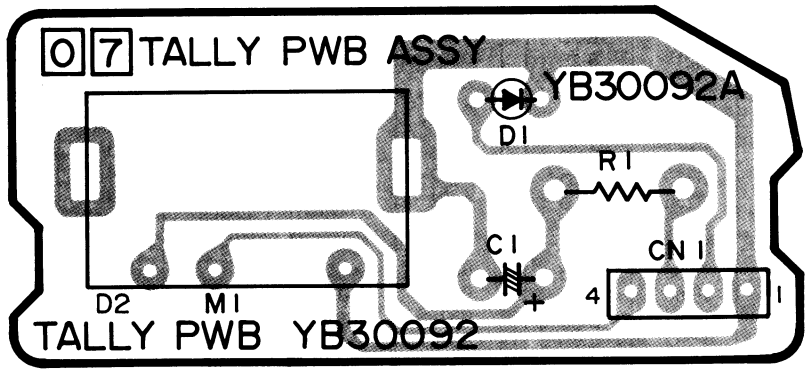

CH2
CH I
CH3
FLY ERASE
CH4

40 UPPER DRUM PWB
YDM3064 (M3EG/EK)
YDM3064-3 (M5EG/EK)

5.13 TALLY SCHEMATIC DIAGRAM (ONLY USE FOR M5EG/EK)

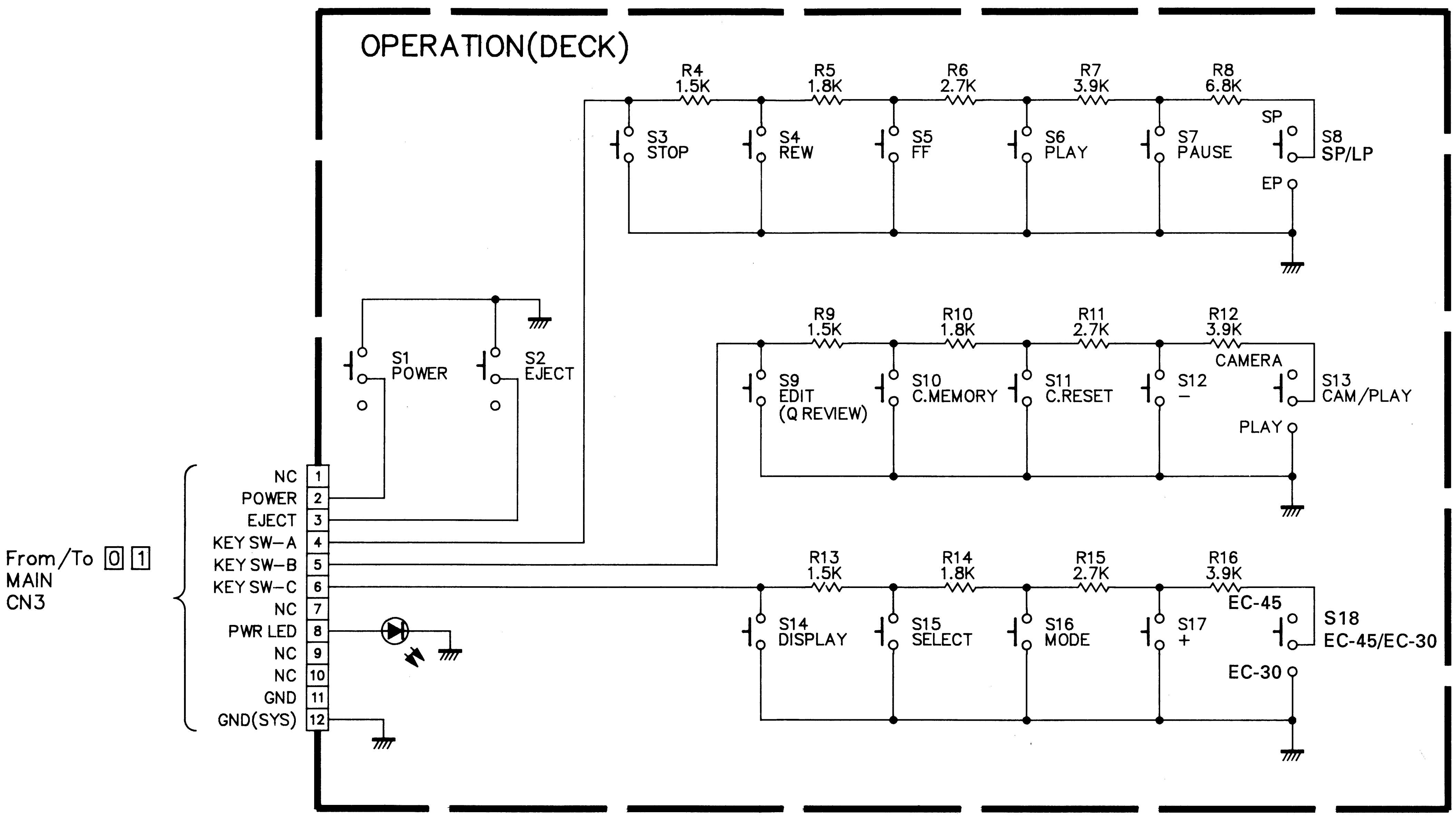

07 TALLY
D2
IR DETECT UNIT
M1
1
2
3
PAS–B0650
R1
47
C1
47/6.3
D1
SLH–34VC3F
CN1
4 IR REM
REG 5V
2 TALLY
1 GND
To 01 MAIN (MECHACON/SERVO) CN14

5.14 TALLY CIRCUIT BOARD (ONLY USE FOR M5EG/EK)


07 TALLY PWB ASSY
YB30092A
D1
R1
C1
CN I
4
1
D2
M1
TALLY PWB YB30092

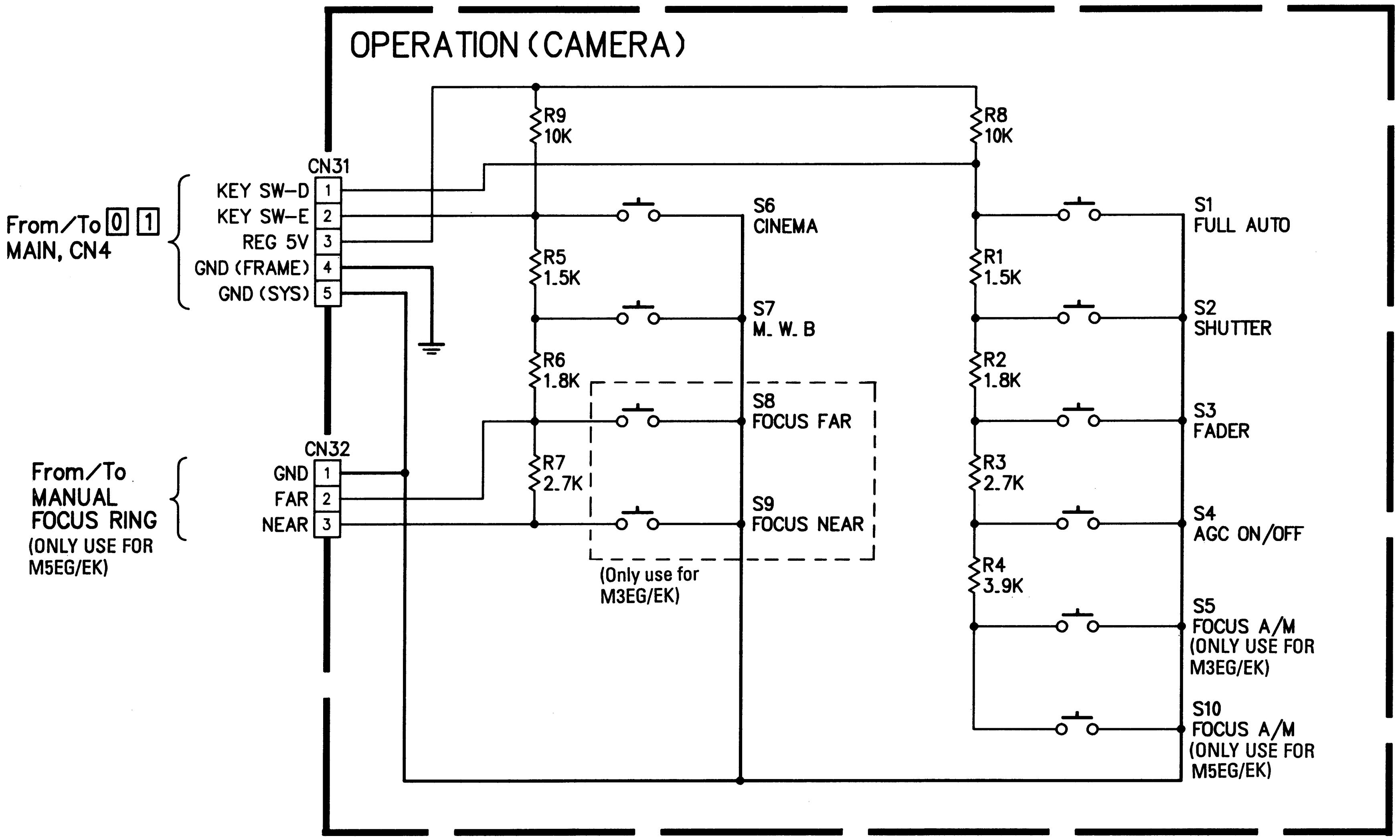
5.15 OPERATION (DECK) SCHEMATIC DIAGRAM

Note: ***This schematic diagram is only for reference.***
Avoid replacing individual parts.
Replace the entire unit only.


OPERATION(DECK)
From/To 0 1
MAIN
CN3
NC 1
POWER 2
EJECT 3
KEY SW–A 4
KEY SW–B 5
KEY SW–C 6
NC 7
PWR LED 8
NC 9
NC 10
GND 11
GND(SYS) 12
S1
POWER
S2
EJECT
R4
1.5K
R5
1.8K
R6
2.7K
R7
3.9K
R8
6.8K
S3
STOP
S4
REW
S5
FF
S6
PLAY
S7
PAUSE
SP
S8
SP/LP
EP
R9
1.5K
R10
1.8K
R11
2.7K
R12
3.9K
CAMERA
S9
EDIT
(Q REVIEW)
S10
C.MEMORY
S11
C.RESET
S12
–
S13
CAM/PLAY
PLAY
R13
1.5K
R14
1.8K
R15
2.7K
R16
3.9K
EC-45
S14
DISPLAY
S15
SELECT
S16
MODE
S17
+
S18
EC-45/EC-30
EC-30

5.16 OPERATION (CAMERA) SCHEMATIC DIAGRAM

Note: ***This schematic diagram is only for reference.***
Avoid replacing individual parts.
Replace the entire unit only.


OPERATION (CAMERA)
From/To 0 1 MAIN, CN4
CN31
KEY SW-D 1
KEY SW-E 2
REG 5V 3
GND (FRAME) 4
GND (SYS) 5
From/To MANUAL FOCUS RING (ONLY USE FOR M5EG/EK)
CN32
GND 1
FAR 2
NEAR 3
R9 10K
R5 1.5K
R6 1.8K
R7 2.7K
R8 10K
R1 1.5K
R2 1.8K
R3 2.7K
R4 3.9K
S6 CINEMA
S7 M. W. B
S8 FOCUS FAR
S9 FOCUS NEAR
(Only use for M3EG/EK)
S1 FULL AUTO
S2 SHUTTER
S3 FADER
S4 AGC ON/OFF
S5 FOCUS A/M (ONLY USE FOR M3EG/EK)
S10 FOCUS A/M (ONLY USE FOR M5EG/EK)

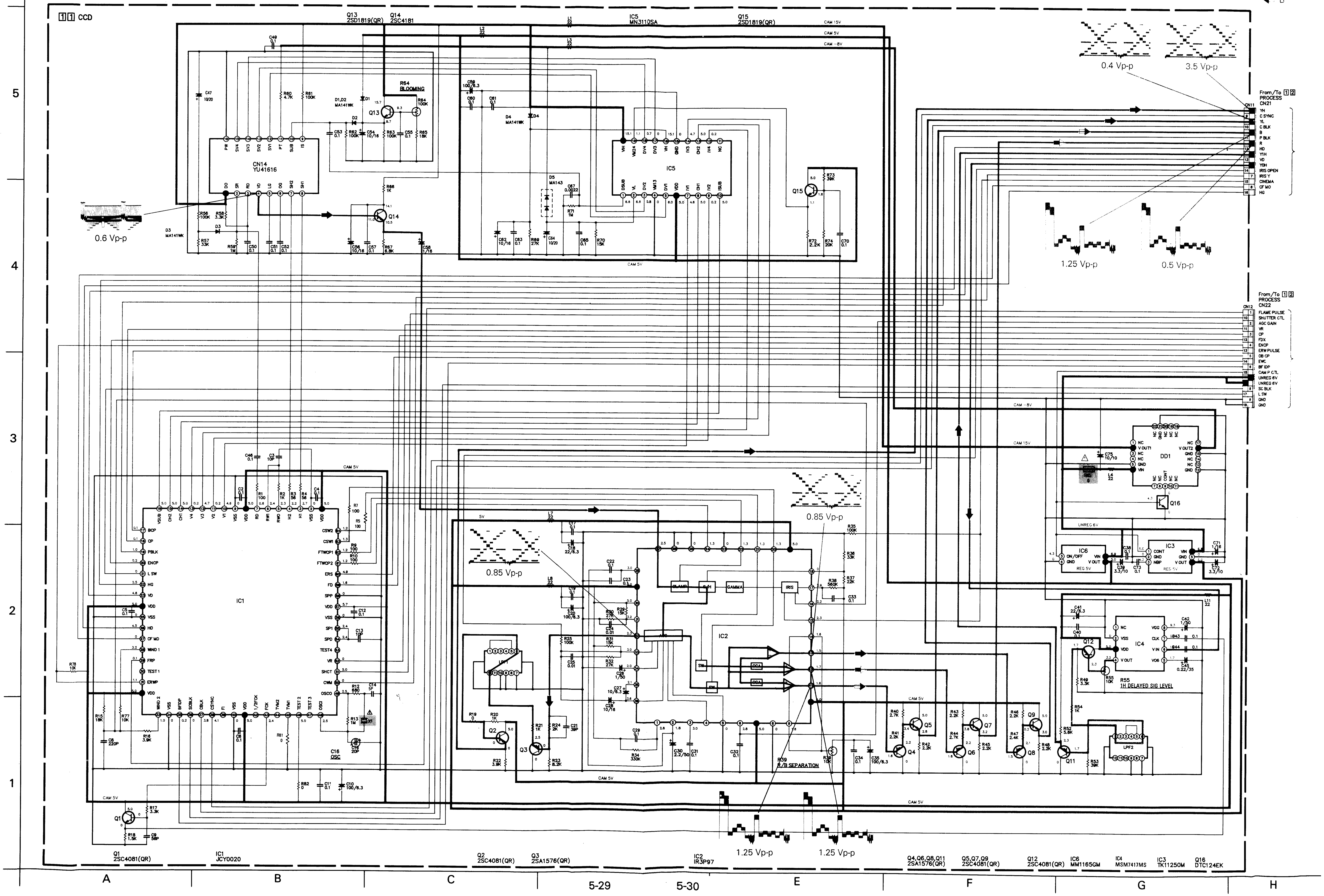
5.17 CCD SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

•Voltage : Measured as the color bar pattern which lighted up brightly is shot in the Rehersal mode.

• Waveform: Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.

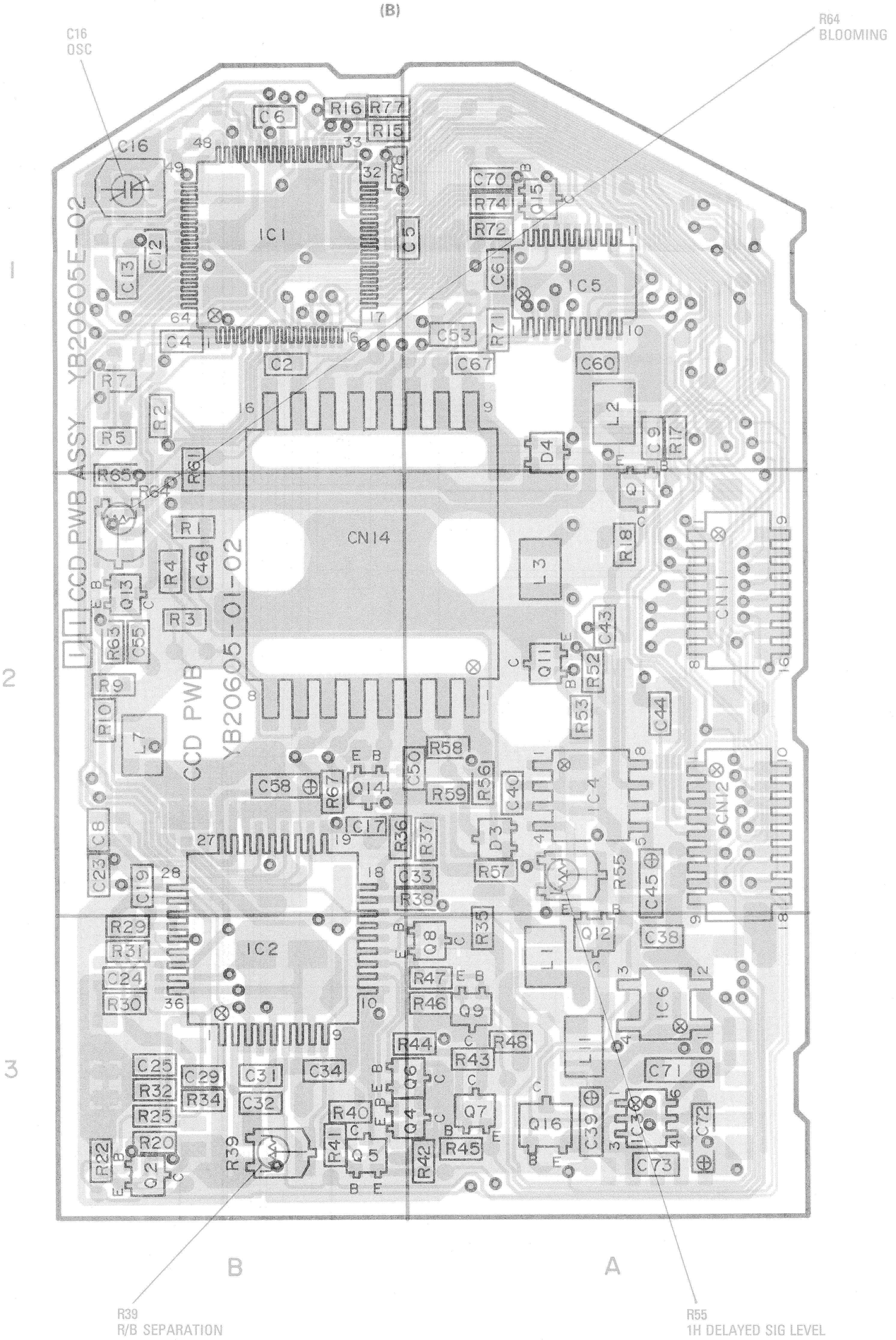
•SIGNAL PATH
- ⬅ Y
- ⬅ R
- ⬅ B

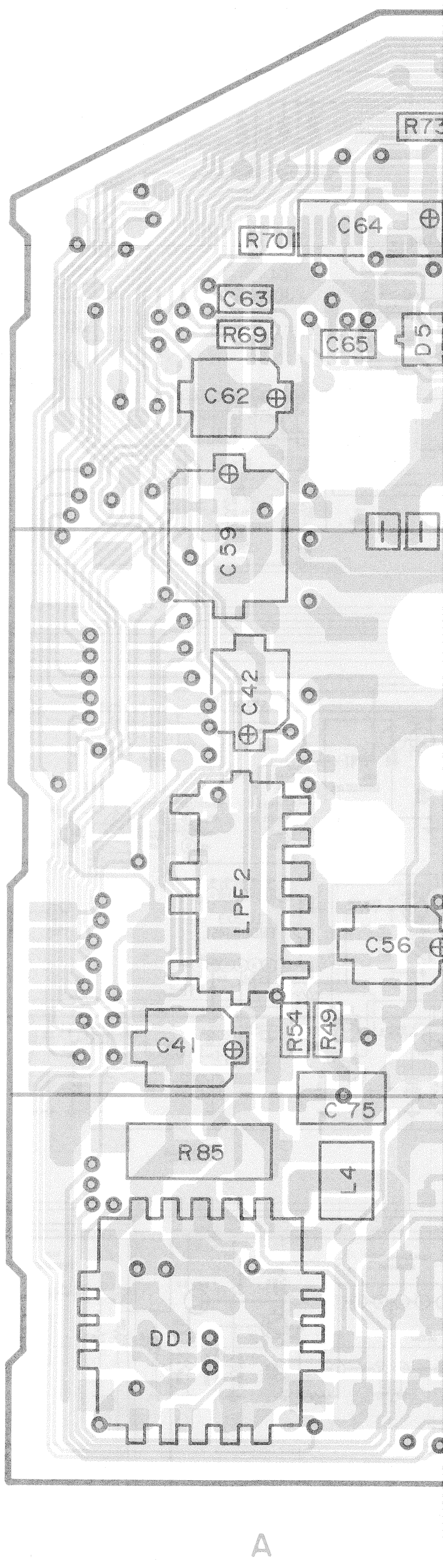


6
5
4
3
2
1
A
B
C
E
F
G
H
1 1 CCD
Q13 2SD1819(QR)
Q14 2SC4181
L2 22
L3 22
IC5 MN3110SA
Q15 2SD1819(QR)
CAM 15V
CAM 5V
CAM -8V
CN14 YU41616
IC5
R64 BLOOMING
D1,D2 MA141WK
D3 MA141WK
D4 MA141WK
D5 MA143
0.6 Vp-p
0.4 Vp-p
3.5 Vp-p
1.25 Vp-p
0.5 Vp-p
0.85 Vp-p
From/To 1 2 PROCESS CN21
CN11
YH
C SYNC
YL
C BLK
B
P BLK
R
HD
YIH
VD
YOH
IRIS OPEN
IRIS Y
CINEMA
CF MO
HC
From/To 1 2 PROCESS CN22
CN12
FLAME PULSE
SHUTTER CTL
AGC GAIN
VR
CP
FDX
ENCP
ERW PULSE
OB CP
EWC
BF IDP
CAM P CTL
UNREG 6V
UNREG 6V
SC BLK
L SW
GND
GND
IC1
IC2
CLAMP
S/H
GAMMA
IRIS
R39 R/B SEPARATION
C16 OSC
DD1
Q16
IC6
IC3
IC4
UNREG 6V
REG 5V
R55 1H DELAYED SIG LEVEL
LPF2
Q1 2SC4081(QR)
IC1 JCY0020
Q2 2SC4081(QR)
Q3 2SA1576(QR)
IC2 IR3P97
Q4,Q6,Q8,Q11 2SA1576(QR)
Q5,Q7,Q9 2SC4081(QR)
Q12 2SC4081(QR)
IC6 MM1165GM
IC4 MSM7417MS
IC3 TK11250M
Q16 DTC124EK

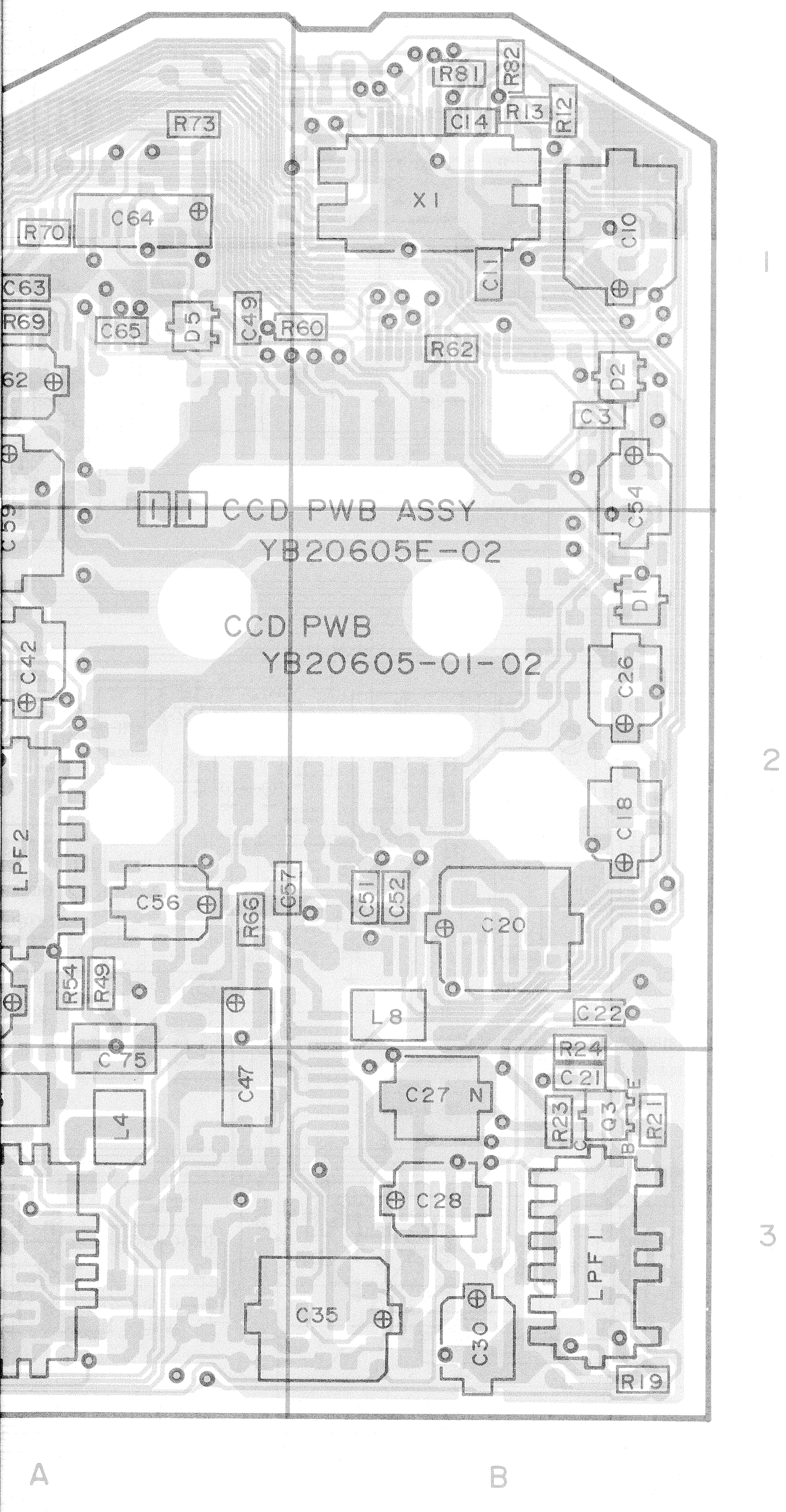
5.18 CCD CIRCUIT BOARD

— CONDUCTOR SIDE —
(B)


C16
OSC
R64
BLOOMING
CCD PWB ASSY YB20605E-02
CCD PWB YB20605-01-02
IC1
IC2
IC3
IC4
IC5
IC6
CN11
CN12
CN14
Q1
Q2
Q4
Q5
Q6
Q7
Q8
Q9
Q11
Q12
Q13
Q14
Q15
Q16
D3
D4
L1
L2
L3
L7
L11
1
2
3
B
A
R39
R/B SEPARATION
R55
1H DELAYED SIG LEVEL


R73
R70
C64
C63
R69
C65
D5
C62
C59
C42
LPF2
C56
C41
R54
R49
C75
R85
L4
DD1
A

— COMPONENT SIDE —
(A)


CCD PWB ASSY
YB20605E-02
CCD PWB
YB20605-01-02
R73
R70
C64
C63
R69
C65
D5
C49
R60
R62
X1
R81
R82
R13
R12
C14
C11
C10
D2
C3
C54
D1
C26
C18
C59
C42
LPF2
C56
R66
C57
C51
C52
C20
R54
R49
L8
C22
R24
C21
C75
C47
C27
R23
Q3
R21
L4
C28
LPF1
C35
C30
R19
E
B
C
N
1
2
3
A
B

• Location of SMC parts
A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-1B
IC2	B-3B
IC3	B-3A
IC4	B-2A
IC5	B-1A
IC6	B-3A

REF. No.	LOCATION
TRANSISTOR	
Q1	B-2A
Q2	B-3B
Q3	A-3B
Q4	B-3B
Q5	B-3B
Q6	B-3B
Q7	B-3A
Q8	B-3A
Q9	B-3A
Q11	B-2A
Q12	B-3A
Q13	B-2B
Q14	B-2B
Q15	B-1A
Q16	B-3A

REF. No.	LOCATION
DIODE	
D1	A-2B
D2	A-1B
D3	B-2A
D4	B-1A
D5	A-1A

REF. No.	LOCATION
RESISTOR	
R1	B-2B
R2	B-1B
R3	B-2B
R4	B-2B
R5	B-1B
R7	B-1B
R9	B-2B
R10	B-2B
R12	A-1B
R13	A-1B
R15	B-1B
R16	B-1B
R17	B-1A
R18	B-2A
R19	A-3B
R20	B-3B
R21	A-3B
R22	B-3B

REF. No.	LOCATION
RESISTOR	
R23	A-3B
R24	A-3B
R25	B-3B
R29	B-3B
R30	B-3B
R31	B-3B
R32	B-3B
R34	B-3B
R35	B-3A
R36	B-2B
R37	B-2A
R38	B-2A
R39	B-3B
R40	B-3B
R41	B-3B
R42	B-3A
R43	B-3A
R44	B-3A
R45	B-3A
R46	B-3A
R47	B-3A
R48	B-3A
R49	A-2A
R52	B-2A
R53	B-2A
R54	A-2A
R55	B-2A
R56	B-2A
R57	B-2A
R58	B-2A
R59	B-2A
R60	A-1B
R61	B-1B
R62	A-1B
R63	B-2B
R64	B-2B
R65	B-2B
R66	A-2A
R67	B-2B
R69	A-1A
R70	A-1A
R71	B-1A
R72	B-1A
R73	A-1A
R74	B-1A
R77	B-1B
R78	B-1B
R81	A-1B
R82	A-1B
R85	A-3A

REF. No.	LOCATION
CAPACITOR	
C2	B-1B
C3	A-1B
C4	B-1B
C5	B-1A
C6	B-1B
C8	B-2B
C9	B-1A
C10	A-1B
C11	A-1B
C12	B-1B
C13	B-1B
C14	A-1B
C16	B-1B
C17	B-2B
C18	A-2A
C19	B-2B
C20	A-2B
C21	A-3B
C22	A-2B
C23	B-2B
C24	B-3B
C25	B-3B
C26	A-2B
C27	A-3B
C28	A-3B
C29	B-3B
C30	A-3B
C31	B-3B
C32	B-3B
C33	B-2A
C34	B-3B
C35	A-3B
C38	B-3A
C39	B-3A
C40	B-2A
C41	A-2A
C42	A-2A
C43	B-2A
C44	B-2A
C45	B-2A
C46	B-2B
C47	A-3A
C49	A-1A
C50	B-2A
C51	A-2B
C52	A-2B
C53	B-1A
C54	A-1B
C55	B-2B
C56	A-2A
C57	A-2A
C58	B-2B
C59	A-2A
C60	B-1A
C61	B-1A
C62	A-1A
C63	A-1A
C64	A-1A
C65	A-1A
C67	B-1A
C70	B-1A
C71	B-3A
C72	B-3A
C73	B-3A
C75	A-3A

REF. No.	LOCATION
COIL	
L1	B-3A
L2	B-1A
L3	B-2A
L4	A-3A
L7	B-2B
L8	A-2B
L11	B-3A

REF. No.	LOCATION
LPF	
LPF1	A-3B
LPF2	A-2A

REF. No.	LOCATION
CRYSTAL	
X1	A-1B

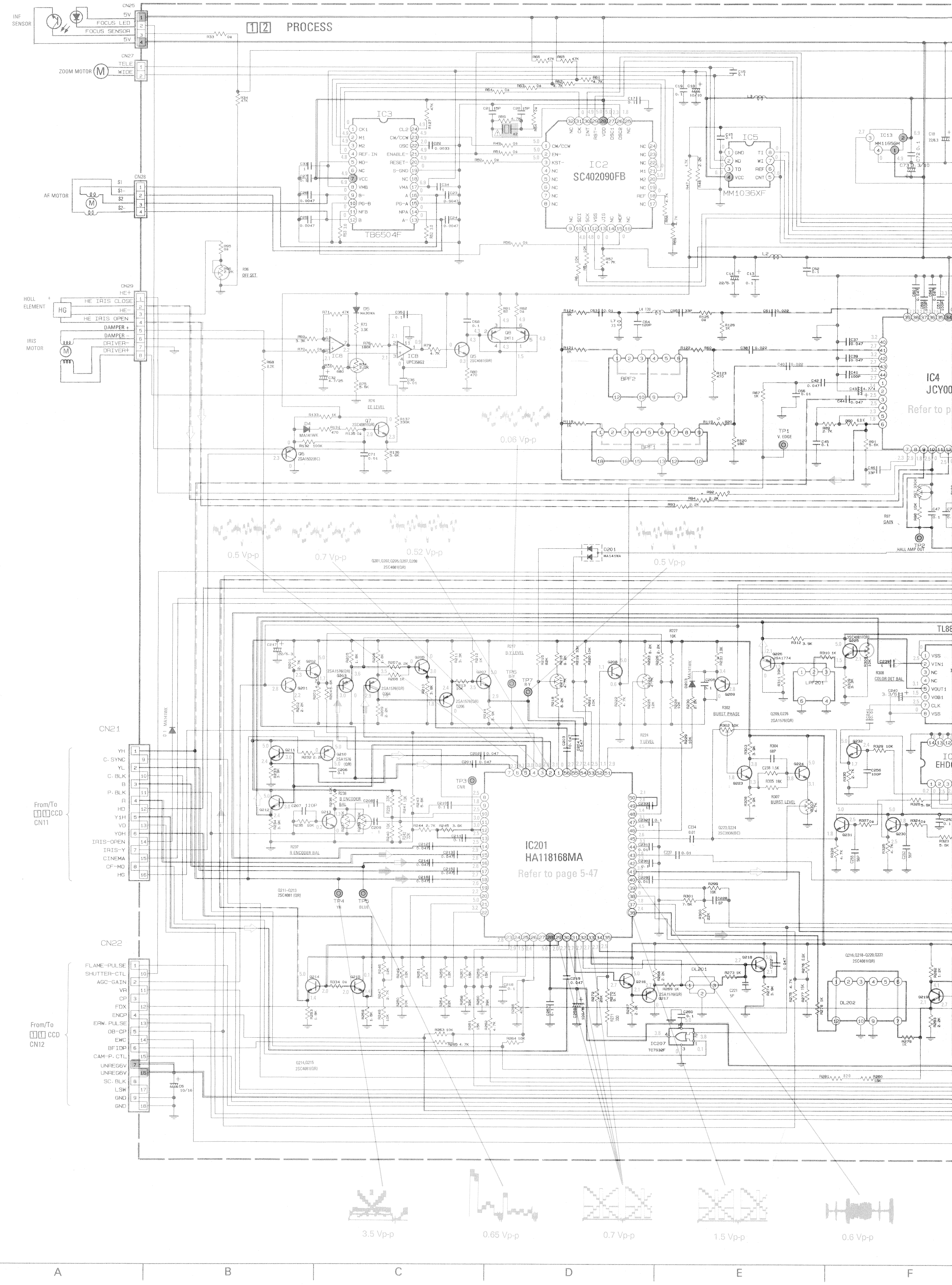
REF. No.	LOCATION
CONVERTER	
DD1	A-3A

REF. No.	LOCATION
CONNECTOR	
CN11	B-2A
CN12	B-2A
CN14	B-2B

5.19 PROCESS SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

•Voltage : Measured as the color bar pattern which lighted up brightly is shot in the Rehersal mode.



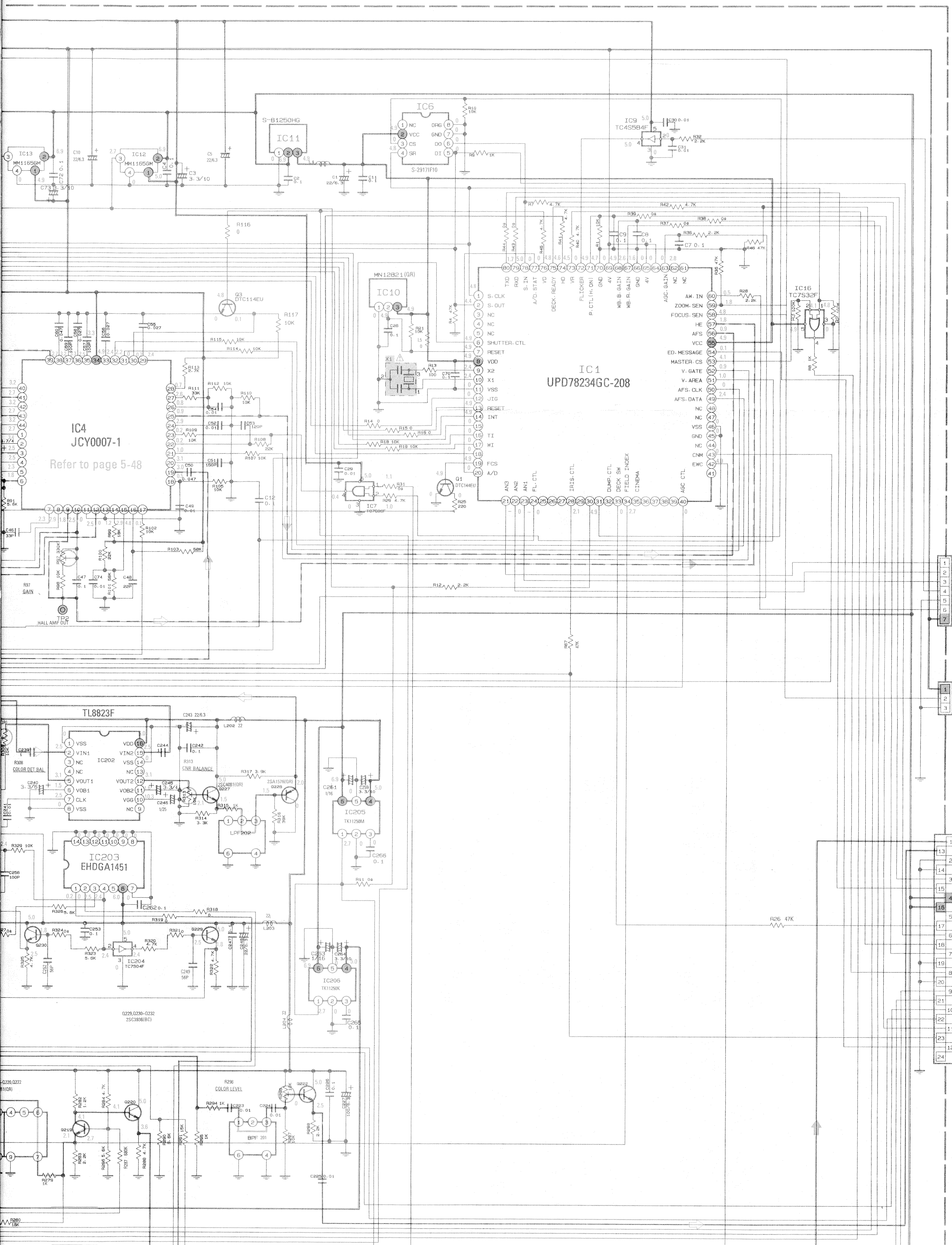
1 2 PROCESS
INF SENSOR
CN25
5V
FOCUS LED
FOCUS SENSOR
5V
ZOOM MOTOR
CN27
TELE
WIDE
AF MOTOR
CN28
$1
$1-
$2
$2-
HOLL ELEMENT
HG
IRIS MOTOR
CN29
HE+
HE IRIS CLOSE
HE-
HE IRIS OPEN
DAMPER+
DAMPER-
DRIVER-
DRIVER+
IC3
TB6504F
IC2
SC402090FB
IC5
MM1036XF
IC13
MM1165GM
IC4
JCY00
Refer to p
BPF2
BPF1
TP1
V. EDGE
TP2
HALL AMP OUT
R97
GAIN
R96
OFF SET
R74
EE LEVEL
IC8
UPC358G2
Q8
IMT1
D4
MA141WK
D5
MA3D6A
D201
MA141WA
0.06 Vp-p
0.5 Vp-p
0.7 Vp-p
0.52 Vp-p
0.5 Vp-p
Q201,Q202,Q205,Q207,Q208
2SC4081(QR)
R217
B-Y LEVEL
TP6
B-Y
TP7
R-Y
R224
Y LEVEL
R302
BURST PHASE
R307
BURST LEVEL
R308
COLOR DET BAL
LPF201
TL88
IC201
HA118168MA
Refer to page 5-47
TP3
CN6
TP4
YE
TP5
BLUE
R238
B ENCODER BAL
R237
R ENCODER BAL
Q211-Q213
2SC4081(QR)
Q214,Q215
2SC4081(QR)
Q223,Q224
2SC3936(BC)
Q209,Q226
2SA1576(QR)
Q216,Q218-Q220,Q222
2SC4081(QR)
DL201
DL202
IC207
TC7S32F
CN21
YH
C. SYNC
YL
C. BLK
B
P. BLK
R
HD
Y1H
VD
YOH
IRIS-OPEN
IRIS-Y
CINEMA
CF-MO
HG
From/To
1 1 CCD
CN11
CN22
FLAME-PULSE
SHUTTER-CTL
AGC-GAIN
VR
CP
FDX
ENCP
ERW. PULSE
OB-CP
EWC
BFIDP
CAM-P. CTL
UNREG6V
UNREG6V
SC. BLK
LSW
GND
GND
From/To
1 1 CCD
CN12
3.5 Vp-p
0.65 Vp-p
0.7 Vp-p
1.5 Vp-p
0.6 Vp-p
8
7
6
5
4
3
2
1
A
B
C
D
E
F

which lighted
mode.

• Waveform: Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.

VIDEO SIGNAL
Y SIGNAL
COLOR (R-Y/B-Y) SIGNAL
R, R-Y SIGNAL
B, B-Y SIGNAL

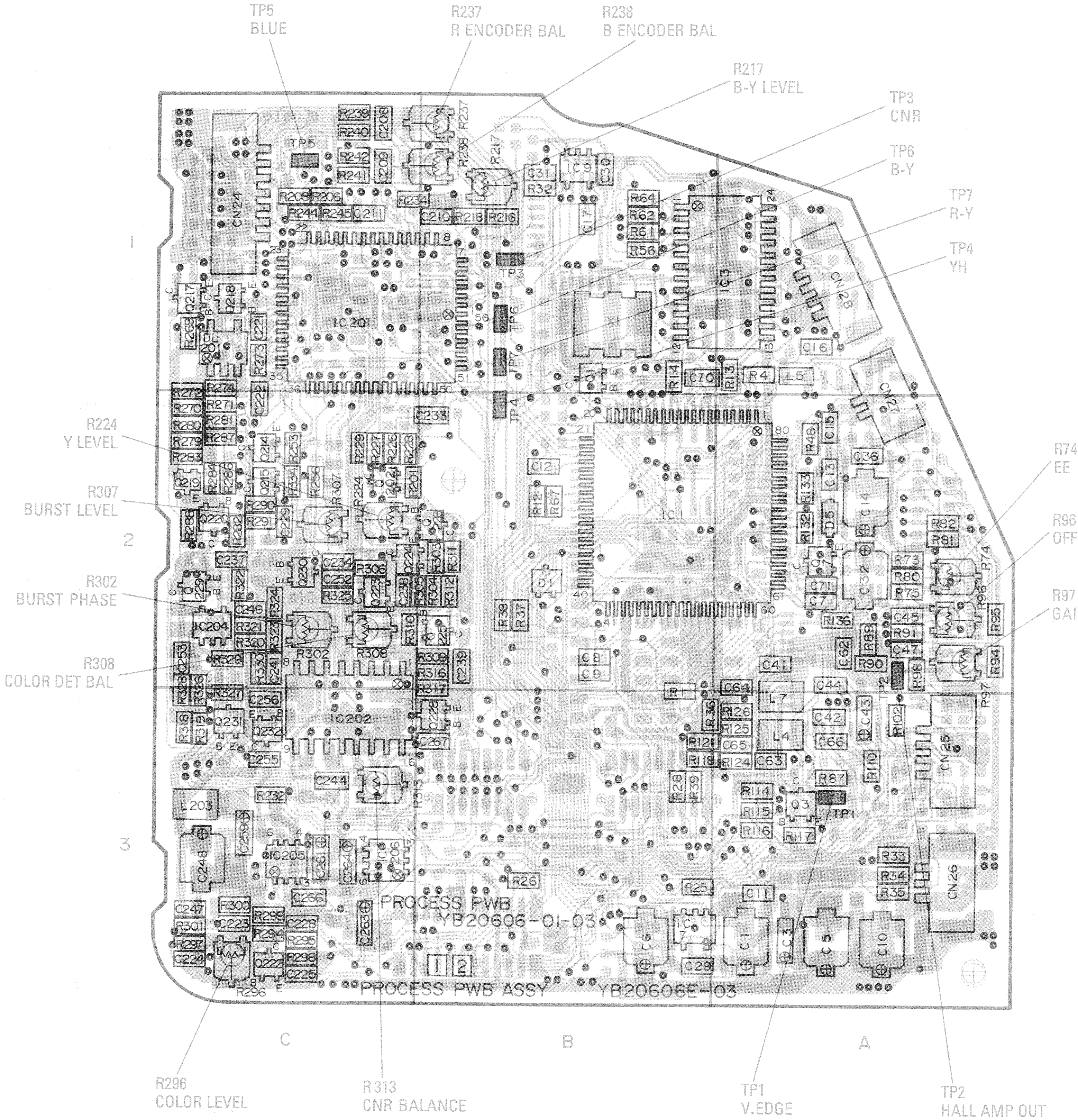
AF SIGNAL
IRIS
HALL
FOCUS



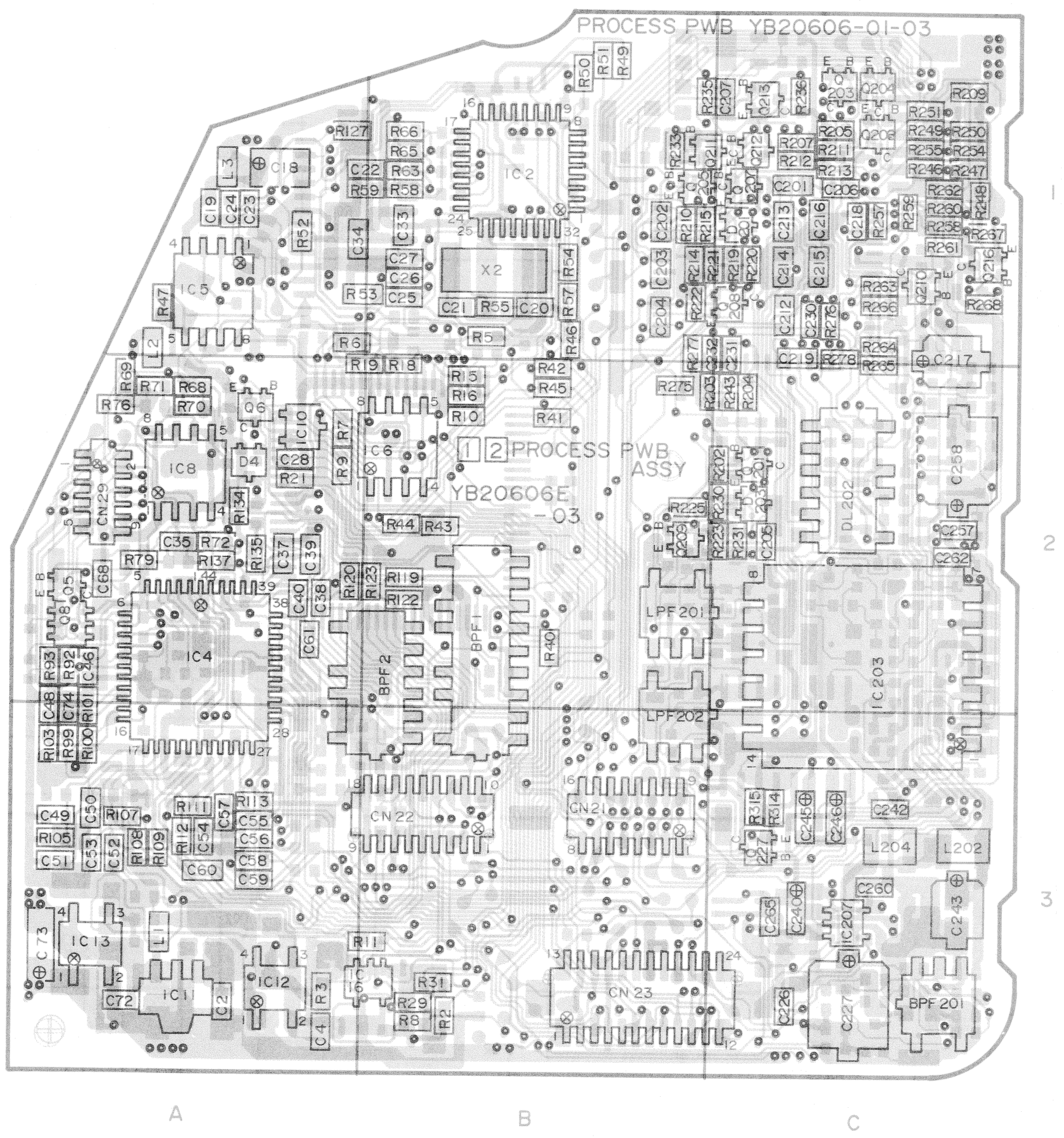
IC13 MM1165GM
IC12 MM1165GM
S-81250HG
IC11
IC6
S-2917IF10
IC9 TC4S584F
MN12821(QR)
IC10
IC1
UPD78234GC-208
IC16 TC7S32F
IC4
JCY0007-1
Refer to page 5-48
Q3 DTC114EU
Q1 DTC144EU
IC7 TC7S08F
TP2 HALL AMP OUT
R97 GAIN
TL8823F
IC202
R313 CNR BALANCE
R308 COLOR DET SAL
LPF202
IC205 TK11250M
IC203
EHDGA1451
IC204 TC7S04F
IC206 TK11250K
Q229,Q230~Q232 2SC3806(BC)
R296 COLOR LEVEL
BPF 201
CN24
ANALOG. 3
ANALOG. 2
ANALOG. 1
FLICKER
GND
AW. IN
5V
From/To AUTO WHITE SENSOR
CN26
5V
ZOOM SENSOR
GND
ZOOM ENCODER
CN23
Y
C
Y. GND
C. GND
RXD
TXD
UNREG6V
UNREG6V
L. BATT
MASTER. SW
SERIAL. IN
SLAVE. RDY
SERIAL. OUT
UNREG. GND
SERIAL. CLK
S. GND
FLAME. PULSE
V. FADER
DATE. FRING
DATE
P. CTL(H-ON)
IRIS. CTL
SR. END
From/To MAIN CN7

5.20 PROCESS CIRCUIT BOARD

— CONDUCTOR SIDE —
(B)


TP5
BLUE
R237
R ENCODER BAL
R238
B ENCODER BAL
R217
B-Y LEVEL
TP3
CNR
TP6
B-Y
TP7
R-Y
TP4
YH
R224
Y LEVEL
R307
BURST LEVEL
R302
BURST PHASE
R308
COLOR DET BAL
R74
EE LEVEL
R96
OFF SET
R97
GAIN
R296
COLOR LEVEL
R313
CNR BALANCE
TP1
V.EDGE
TP2
HALL AMP OUT
PROCESS PWB
YB20606-01-03
PROCESS PWB ASSY YB20606E-03
1
2
3
C
B
A

— COMPONENT SIDE —
(A)

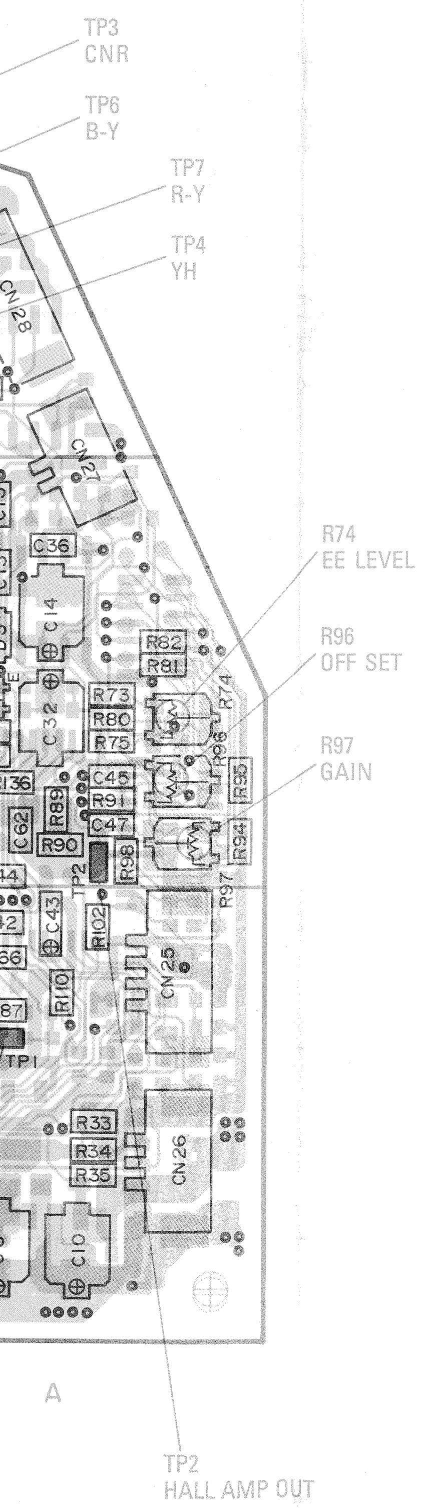

PROCESS PWB YB20606-01-03
PROCESS PWB ASSY
YB20606E
-03
1
2
3
A
B
C

• Location of S
A-1D
Lo
A :
B :

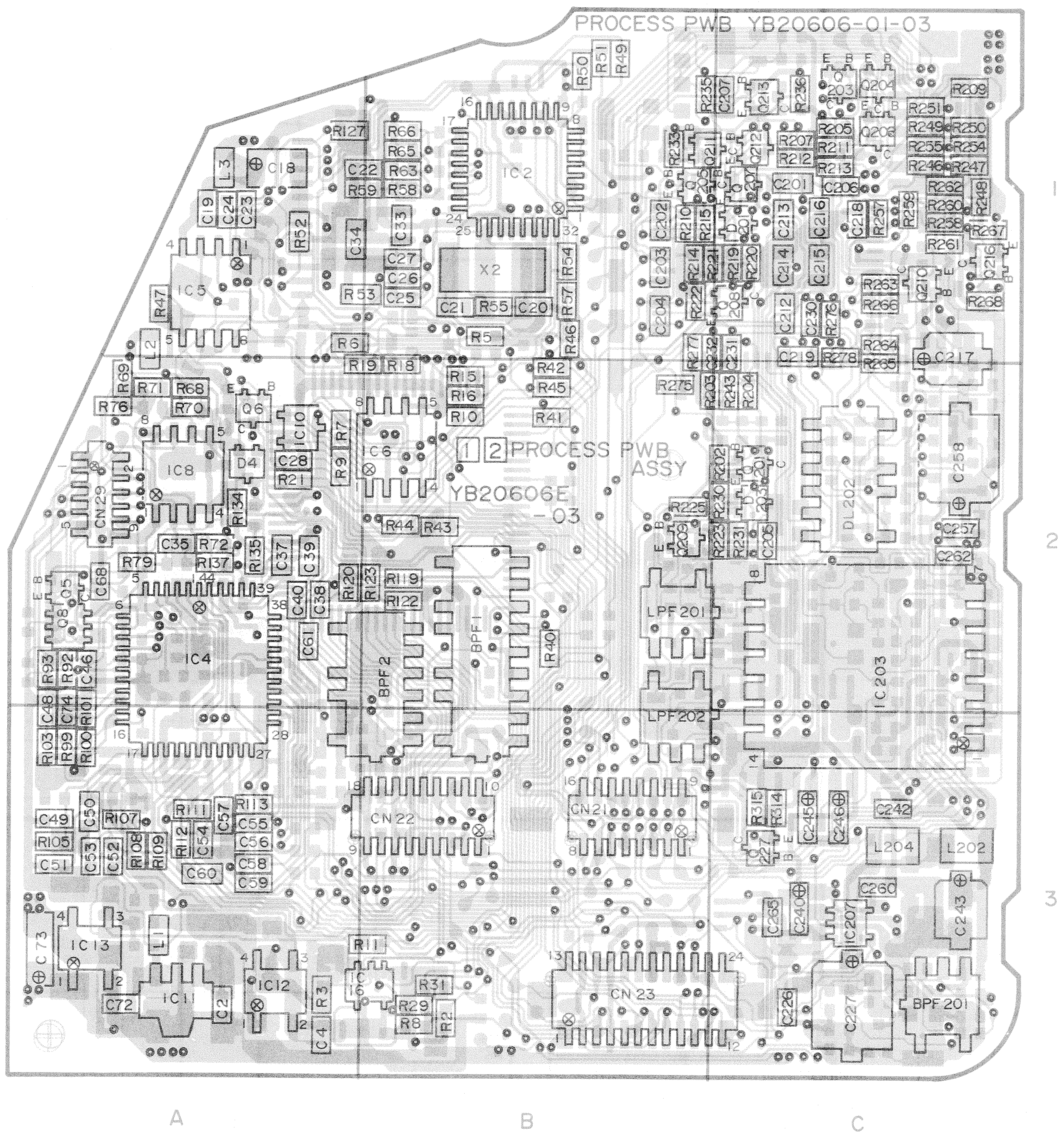
REF. No.	LOCATIO
IC	
IC1	B-2B
IC2	A-1B
IC3	B-1A
IC4	A-2A
IC5	A-1A
IC6	A-2B
IC7	B-3B
IC8	A-2A
IC9	B-1B
IC10	A-2A
IC11	A-3A
IC12	A-3A
IC13	A-3A
IC16	A-3B
IC201	B-1C
IC202	B-3C
IC203	A-2C
IC204	B-2C
IC205	B-3C
IC206	B-3C
IC207	A-3C

REF. No.	LOCATION
TRANSISTOR	
Q1	B-1B
Q3	B-3A
Q5	A-2A
Q6	A-2A
Q7	B-2A
Q8	A-2A
Q201	A-2C
Q202	B-2C
Q203	A-1C
Q204	A-1C
Q205	A-1B
Q206	A-1C
Q207	A-1C
Q208	A-1C
Q209	A-2B
Q210	A-1C
Q211	A-1B
Q212	A-1C
Q213	A-1C
Q214	B-2C
Q215	B-2C
Q216	A-1C
Q217	B-1C
Q218	B-1C
Q219	B-2C
Q220	B-2C
Q222	B-3C
Q223	B-2C
Q224	B-2C
Q225	B-2B
Q226	B-2B
Q227	A-3C
Q228	B-3B
Q229	B-2C
Q230	B-2C
Q231	B-3C
Q232	B-3C

REF. No.	LOCATION
DIODE	
D1	B-2B
D4	A-2A
D5	B-2A
D201	A-1C
D203	A-2C



— COMPONENT SIDE —
(A)



• Location of SMC parts

A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-2B
IC2	A-1B
IC3	B-1A
IC4	A-2A
IC5	A-1A
IC6	A-2B
IC7	B-3B
IC8	A-2A
IC9	B-1B
IC10	A-2A
IC11	A-3A
IC12	A-3A
IC13	A-3A
IC16	A-3B
IC201	B-1C
IC202	B-3C
IC203	A-2C
IC204	B-2C
IC205	B-3C
IC206	B-3C
IC207	A-3C

REF. No.	LOCATION
TRANSISTOR	
Q1	B-1B
Q3	B-3A
Q5	A-2A
Q6	A-2A
Q7	B-2A
Q8	A-2A
Q201	A-2C
Q202	B-2C
Q203	A-1C
Q204	A-1C
Q205	A-1B
Q206	A-1C
Q207	A-1C
Q208	A-1C
Q209	A-2B
Q210	A-1C
Q211	A-1B
Q212	A-1C
Q213	A-1C
Q214	B-2C
Q215	B-2C
Q216	A-1C
Q217	B-1C
Q218	B-1C
Q219	B-2C
Q220	B-2C
Q222	B-3C
Q223	B-2C
Q224	B-2C
Q225	B-2B
Q226	B-2B
Q227	A-3C
Q228	B-3B
Q229	B-2C
Q230	B-2C
Q231	B-3C
Q232	B-3C

REF. No.	LOCATION
DIODE	
D1	B-2B
D4	A-2A
D5	B-2A
D201	A-1C
D203	A-2C

REF. No.	LOCATION
RESISTOR	
R1	B-2B
R2	A-3B
R3	A-3A
R4	B-1A
R5	A-1B
R6	A-1A
R7	A-2A
R8	A-3B
R9	A-2A
R10	A-2B
R11	A-3B
R12	B-2B
R13	B-1A
R14	B-1B
R15	A-2B
R16	A-2B
R18	A-2B
R19	A-2A
R21	A-2A
R25	B-3B
R26	B-3B
R28	B-3B
R29	A-3B
R31	A-3B
R32	B-1B
R33	B-3A
R34	B-3A
R35	B-3A
R36	B-3A
R37	B-2B
R38	B-2B
R39	B-3B
R40	A-2B
R41	A-2B
R42	A-2B
R43	A-2B
R44	A-2B
R45	A-2B
R46	A-1B
R47	A-1A
R48	B-2A
R49	A-1B
R50	A-1B
R51	A-1B
R52	A-1A
R53	A-1A
R54	A-1B
R55	A-1B
R56	B-1B
R57	A-1B
R58	A-1B
R59	A-1A
R61	B-1B
R62	B-1B
R63	A-1B
R64	B-1B
R65	A-1B
R66	A-1B
R67	B-2B
R68	A-2A
R69	A-2A
R70	A-2A
R71	A-2A
R72	A-2A
R73	B-2A
R74	B-2A
R75	B-2A
R76	A-2A
R79	A-2A
R80	B-2A
R81	B-2A
R82	B-2A
R87	B-3A
R89	B-2A
R90	B-2A
R91	B-2A
R92	A-2A
R93	A-2A
R94	B-2A
R95	B-2A
R96	B-2A

REF. No.	LOCATION
RESISTOR	
R97	B-2A
R98	B-2A
R99	A-3A
R100	A-3A
R101	A-3A
R102	B-3A
R103	A-3A
R105	A-3A
R107	A-3A
R108	A-3A
R109	A-3A
R110	B-3A
R111	A-3A
R112	A-3A
R113	A-3A
R114	B-3A
R115	B-3A
R116	B-3A
R117	B-3A
R118	B-3B
R119	A-2B
R120	A-2A
R121	B-3B
R122	A-2B
R123	A-2B
R124	B-3A
R125	B-3A
R126	B-3A
R127	A-1A
R132	B-2A
R133	B-2A
R134	A-2A
R135	A-2A
R136	B-2A
R137	A-2A
R201	B-2C
R202	A-2C
R203	A-2B
R204	A-2C
R205	A-1C
R206	B-1C
R207	A-1C
R208	B-1C
R209	A-1C
R210	A-1B
R211	A-1C
R212	A-1C
R213	A-1C
R214	A-1B
R215	A-1B
R216	B-1B
R217	B-1B
R218	B-1B
R219	A-1C
R220	A-1C
R221	A-1B
R222	A-1B
R223	A-2C
R224	B-2C
R225	A-2B
R226	B-2C
R227	B-2C
R228	B-2C
R229	B-2C
R230	A-2C
R231	A-2C
R232	B-3C
R233	A-1B
R234	B-1C
R235	A-1B
R236	A-1C
R237	B-1B
R238	B-1B
R239	B-1C
R240	B-1C
R241	B-1C
R242	B-1C
R243	A-2C
R244	B-1C
R245	B-1C
R246	A-1C

REF. No.	LOCATION
RESISTOR	
R247	A-1C
R248	A-1C
R249	A-1C
R250	A-1C
R251	A-1C
R253	B-2C
R254	A-1C
R255	A-1C
R256	B-2C
R257	A-1C
R258	A-1C
R259	A-1C
R260	A-1C
R261	A-1C
R262	A-1C
R263	A-1C
R264	A-1C
R265	A-1C
R266	A-1C
R267	A-1C
R268	A-1C
R269	B-1C
R270	B-2C
R271	B-2C
R272	B-1C
R273	B-1C
R274	B-1C
R275	A-2B
R276	A-1C
R277	A-1B
R278	A-1C
R279	B-2C
R280	B-2C
R281	B-2C
R282	B-2C
R283	B-2C
R284	B-2C
R286	B-2C
R287	B-2C
R288	B-2C
R290	B-2C
R291	B-2C
R294	B-3C
R295	B-3C
R296	B-3C
R297	B-3C
R298	B-3C
R299	B-3C
R300	B-3C
R301	B-3C
R302	B-2C
R303	B-2B
R304	B-2B
R305	B-2B
R306	B-2C
R307	B-2C
R308	B-2C
R309	B-2B
R310	B-2C
R311	B-2B
R312	B-2B
R313	B-3C
R314	A-3C
R315	A-3C
R316	B-2B
R317	B-2B
R318	B-3C
R319	B-3C
R320	B-2C
R321	B-2C
R322	B-2C
R323	B-2C
R324	B-2C
R325	B-2C
R326	B-3C
R327	B-3C
R328	B-3C
R329	B-2C
R330	B-2C
R334	B-2C

REF. No.	LOCATION
CAPACITOR	
C1	B-3A
C2	A-3A
C3	B-3A
C4	A-3A
C5	B-3A
C6	B-3B
C7	B-2A
C8	B-2B
C9	B-2B
C10	B-3A
C11	B-3A
C12	B-2B
C13	B-2A
C14	B-2A
C15	B-2A
C16	B-1A
C17	B-1B
C18	A-1A
C19	A-1A
C20	A-1B
C21	A-1B
C22	A-1A
C23	A-1A
C24	A-1A
C25	A-1B
C26	A-1B
C27	A-1B
C28	A-2A
C29	B-3B
C30	B-1B
C31	B-1B
C32	B-2A
C33	A-1B
C34	A-1A
C35	A-2A
C36	B-2A
C37	A-2A
C38	A-2A
C39	A-2A
C40	A-2A
C41	B-2A
C42	B-3A
C43	B-3A
C44	B-2A
C45	B-2A
C46	A-2A
C47	B-2A
C48	A-3A
C49	A-3A
C50	A-3A
C51	A-3A
C52	A-3A
C53	A-3A
C54	A-3A
C55	A-3A
C56	A-3A
C57	A-3A
C58	A-3A
C59	A-3A
C60	A-3A
C61	A-2A
C62	B-2A
C63	B-3A
C64	B-2A
C65	B-3A
C66	B-3A
C68	A-2A
C70	B-1B
C71	B-2A
C72	A-3A
C73	A-3A
C74	A-3A
C201	A-1C
C202	A-1B
C203	A-1B
C204	A-1B
C205	A-2C
C206	A-1C
C207	A-1C
C208	B-1C
C209	B-1C

REF. No.	LOCATION
CAPACITOR	
C210	B-1B
C211	B-1C
C212	A-1C
C213	A-1C
C214	A-1C
C215	A-1C
C216	A-1C
C217	A-1C
C218	A-1C
C219	A-1C
C221	B-1C
C222	B-2C
C223	B-3C
C224	B-3C
C225	B-3C
C226	A-3C
C227	A-3C
C228	B-3C
C229	B-2C
C230	A-1C
C231	A-1C
C232	A-1C
C233	B-2B
C234	B-2C
C237	B-2C
C238	B-2C
C239	B-2B
C240	A-3C
C241	B-2C
C242	A-3C
C243	A-3C
C244	B-3C
C245	A-3C
C246	A-3C
C247	B-3C
C248	B-3C
C249	B-2C
C252	B-2C
C253	B-2C
C255	B-3C
C256	B-3C
C257	A-2C
C258	A-2C
C259	B-3C
C260	A-3C
C261	B-3C
C262	A-2C
C263	B-3C
C264	B-3C
C265	A-3C
C266	B-3C
C267	B-3B

REF. No.	LOCATION
COIL	
L1	A-3A
L2	A-1A
L3	A-1A
L4	B-3A
L5	B-1A
L7	B-3A
L202	A-3C
L203	B-3C
L204	A-3C

REF. No.	LOCATION
LPF	
LPF201	A-2B
LPF202	A-3B

REF. No.	LOCATION
BPF	
BPF1	A-2B
BPF2	A-2B
BPF201	A-3C

REF. No.	LOCATION
DELAY LINE	
DL201	B-1C
DL202	A-2C

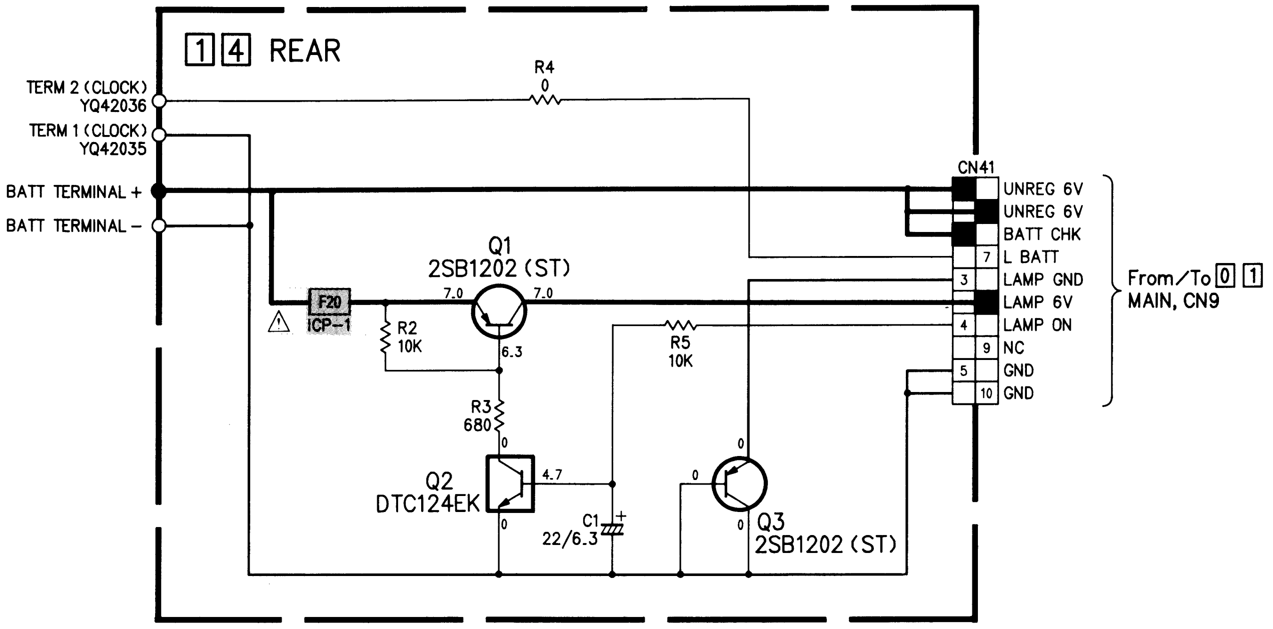
REF. No.	LOCATION
RESONATOR	
X1	B-1B
X2	A-1B

REF. No.	LOCATION
TEST PIN	
TP1	B-3A
TP2	B-2A
TP3	B-1B
TP4	B-2B
TP5	B-1C
TP6	B-1B
TP7	B-1B

REF. No.	LOCATION
CONNECTOR	
CN21	A-3B
CN22	A-3B
CN23	A-3B
CN24	B-1C
CN25	B-3A
CN26	B-3A
CN27	B-1A
CN28	B-1A
CN29	A-2A

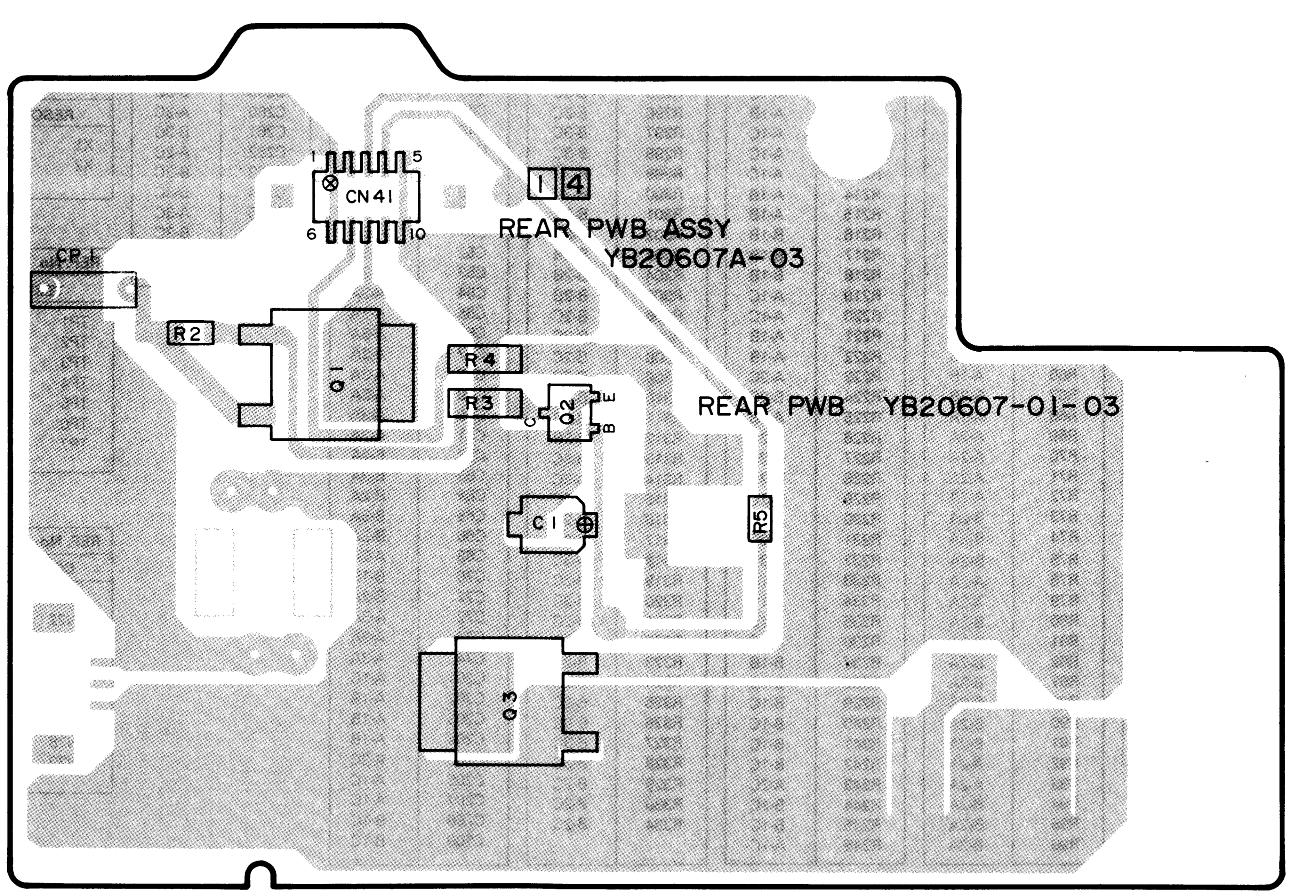
5.21 REAR SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.



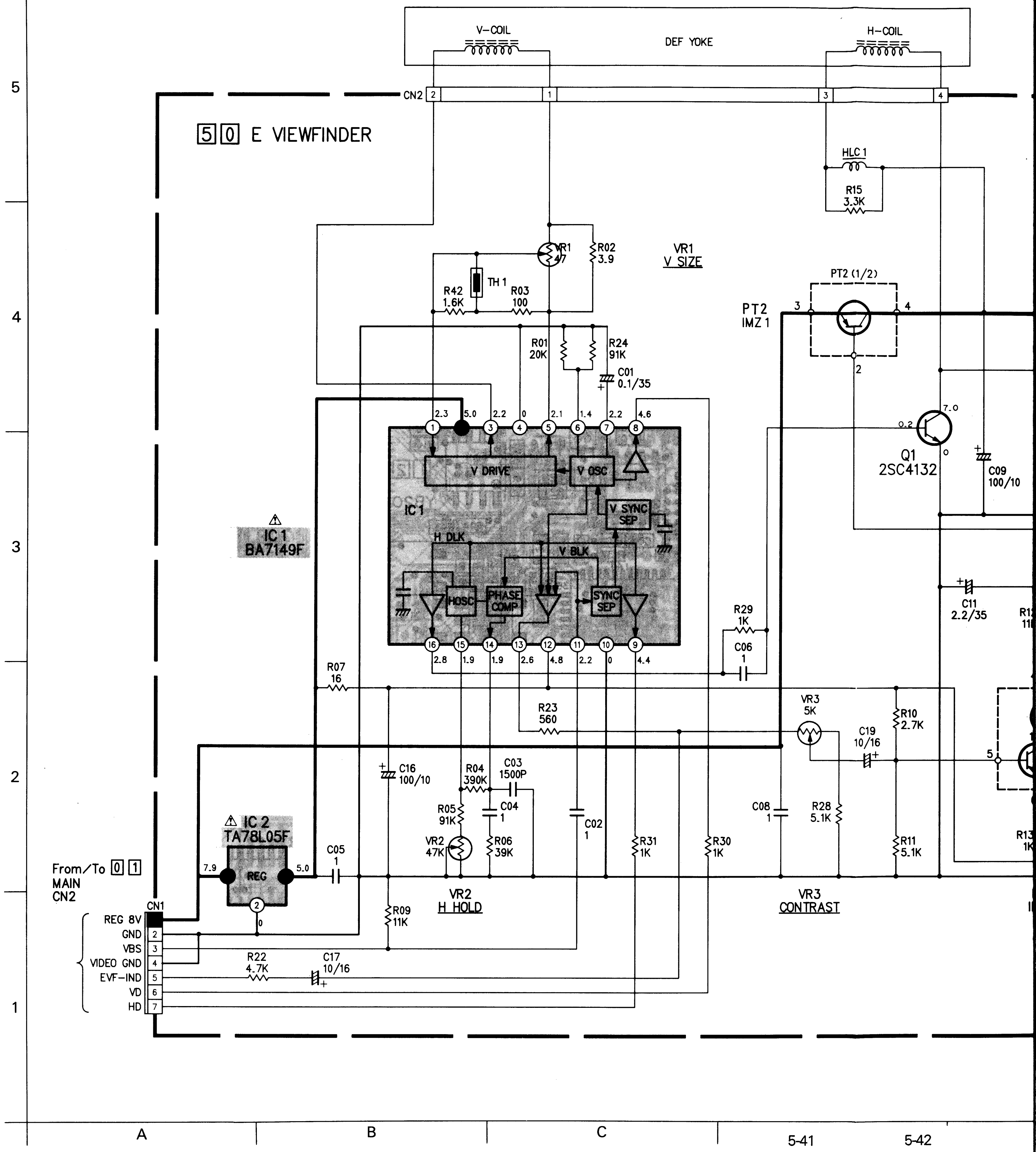
1 4 REAR
TERM 2 (CLOCK) YQ42036
TERM 1 (CLOCK) YQ42035
BATT TERMINAL +
BATT TERMINAL −
R4 0
CN41
UNREG 6V
UNREG 6V
BATT CHK
7 L BATT
3 LAMP GND
LAMP 6V
4 LAMP ON
9 NC
5 GND
10 GND
From/To 0 1 MAIN, CN9
Q1 2SB1202 (ST)
7.0
7.0
6.3
F20 ICP-1
R2 10K
R5 10K
R3 680
0
Q2 DTC124EK
4.7
0
C1 22/6.3
0
0
Q3 2SB1202 (ST)

5.22 REAR CIRCUIT BOARD



CN41
1
5
6
10
1 4
REAR PWB ASSY YB20607A-03
REAR PWB YB20607-01-03
CP1
R2
Q1
R4
R3
Q2
C
B
E
C1
R5
Q3

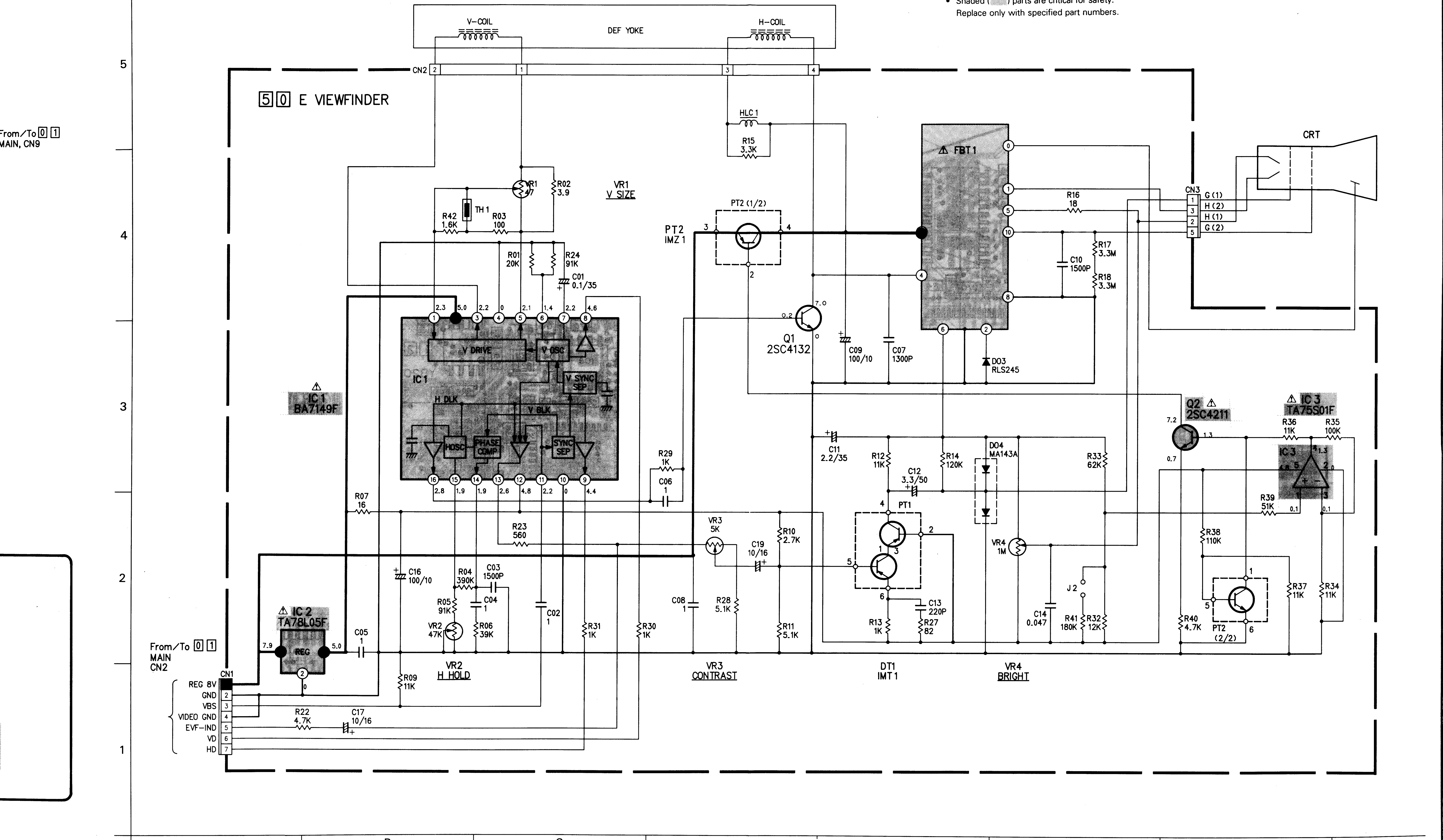
5.23 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM



6
5
4
3
2
1
A
B
C
V-COIL
DEF YOKE
H-COIL
CN2 2 1 3 4
5 0 E VIEWFINDER
HLC 1
R15 3.3K
VR1 47
R02 3.9
VR1 V SIZE
TH 1
R42 1.6K
R03 100
R01 20K
R24 91K
C01 0.1/35
PT2 (1/2)
PT2 IMZ 1
3
4
2
Q1 2SC4132
7.0
0.2
0
C09 100/10
2.3 5.0 2.2 0 2.1 1.4 2.2 4.6
V DRIVE
V OSC
V SYNC SEP
IC 1
H DLK
V BLK
HOSC
PHASE COMP
SYNC SEP
2.8 1.9 1.9 2.6 4.8 2.2 0 4.4
IC 1 BA7149F
C11 2.2/35
R29 1K
C06 1
R07 16
R23 560
VR3 5K
R10 2.7K
C19 10/16
5
C16 100/10
R04 390K
C03 1500P
R05 91K
C04 1
VR2 47K
R06 39K
C02 1
R31 1K
R30 1K
C08 1
R28 5.1K
R11 5.1K
IC 2 TA78L05F
REG
7.9
5.0
2
0
C05 1
R09 11K
VR2 H HOLD
VR3 CONTRAST
From/To 0 1 MAIN CN2
CN1
REG 8V
GND 2
VBS 3
VIDEO GND 4
EVF-IND 5
VD 6
HD 7
R22 4.7K
C17 10/16

5.23 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM

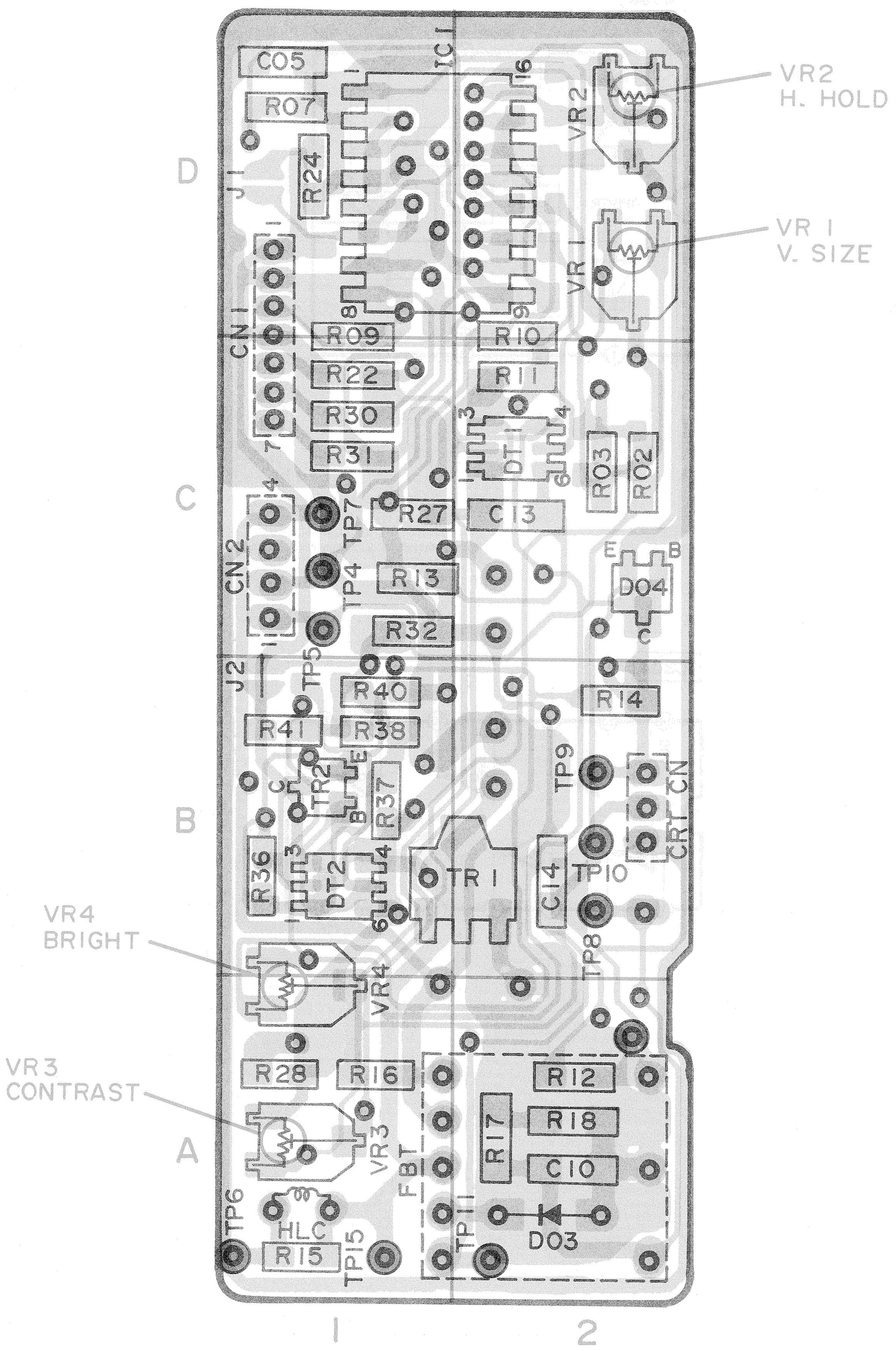
- Shaded (▨) parts are critical for safety.
  Replace only with specified part numbers.



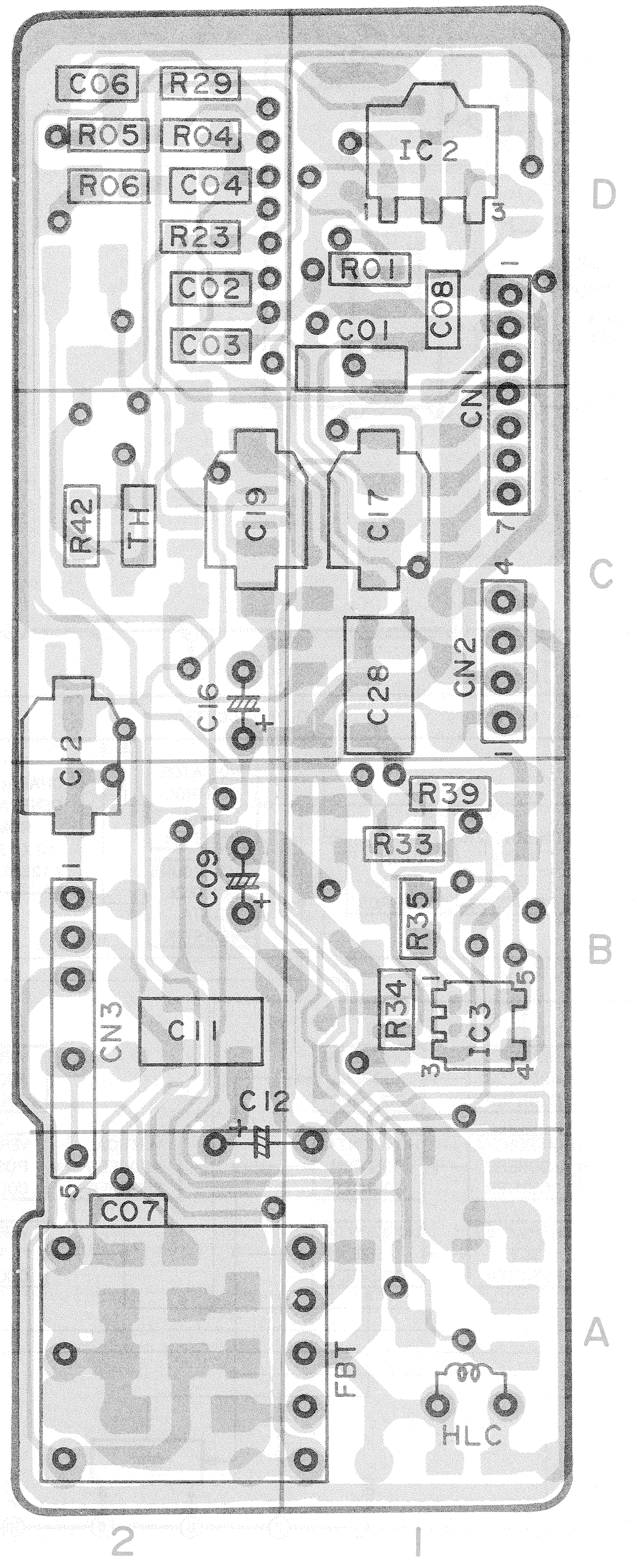
DEF YOKE
V–COIL
H–COIL
CN2
50 E VIEWFINDER
From/To 01 MAIN, CN9
HLC 1
R15 3.3K
FBT 1
CRT
CN3
G (1)
H (2)
H (1)
G (2)
R16 18
C10 1500P
R17 3.3M
R18 3.3M
VR1 47
R02 3.9
VR1 V SIZE
TH 1
R42 1.6K
R03 100
R01 20K
R24 91K
C01 0.1/35
PT2 IMZ 1
PT2 (1/2)
Q1 2SC4132
C09 100/10
C07 1300P
D03 RLS245
IC 1 BA7149F
V DRIVE
V OSC
V SYNC SEP
H DLK
V BLK
HOSC
PHASE COMP
SYNC SEP
R29 1K
C06 1
R07 16
R23 560
VR3 5K
C19 10/16
R10 2.7K
C16 100/10
R04 390K
C03 1500P
C04 1
R05 91K
VR2 47K
R06 39K
C02 1
R31 1K
R30 1K
C08 1
R28 5.1K
R11 5.1K
C11 2.2/35
R12 11K
C12 3.3/50
R14 120K
D04 MA143A
R33 62K
PT1
R13 1K
C13 220P
R27 82
VR4 1M
J 2
C14 0.047
R41 180K
R32 12K
Q2 2SC4211
IC 3 TA75S01F
R36 11K
R35 100K
R39 51K
R38 110K
R37 11K
R34 11K
R40 4.7K
PT2 (2/2)
IC 2 TA78L05F
REG
C05 1
R09 11K
VR2 H HOLD
VR3 CONTRAST
DT1 IMT1
VR4 BRIGHT
From/To 01 MAIN CN2
CN1
REG 8V
GND
VBS
VIDEO GND
EVF–IND
VD
HD
R22 4.7K
C17 10/16
A
B
C
E
F
G
H
1
2
3
4
5
6

5.24 ELECTRONIC VIEWFINDER CIRCUIT BOARD

— CONDUCTOR SIDE —
(B)


VR2
H. HOLD
VR 1
V. SIZE
VR4
BRIGHT
VR3
CONTRAST
D
C
B
A
1
2
C05
R07
R24
J1
IC1
VR2
VR1
CN1
R09
R22
R30
R31
R10
R11
DT1
R03
R02
CN2
TP7
TP4
TP5
R27
C13
R13
R32
D04
J2
R40
R38
R41
R14
TR2
R37
TP9
CRT CN
R36
DT2
TR1
C14
TP10
TP8
VR4
R28
R16
R12
R18
R17
C10
VR3
FBT
TP6
HLC
R15
TP15
TP11
D03

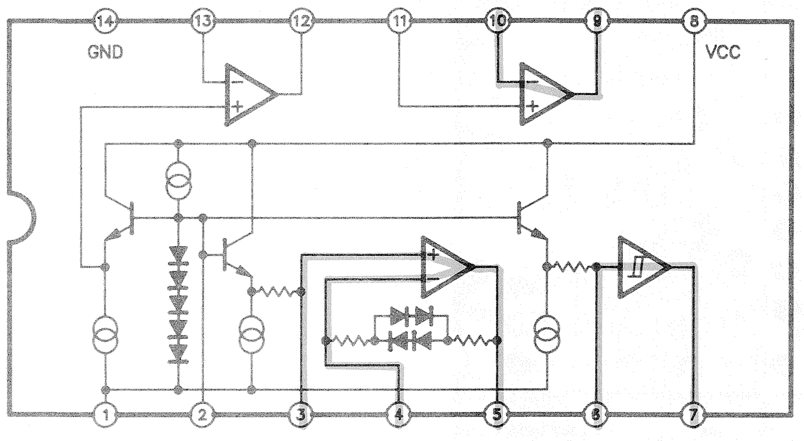
— COMPONENT SIDE —
(A)


D
C
B
A
2
1
C06
R29
R05
R04
R06
C04
R23
R01
C02
C01
C03
C08
IC2
CN1
R42
TH
C19
C17
C16
C28
CN2
C12
R39
R33
C09
R35
CN3
C11
R34
IC3
C12
C07
FBT
HLC

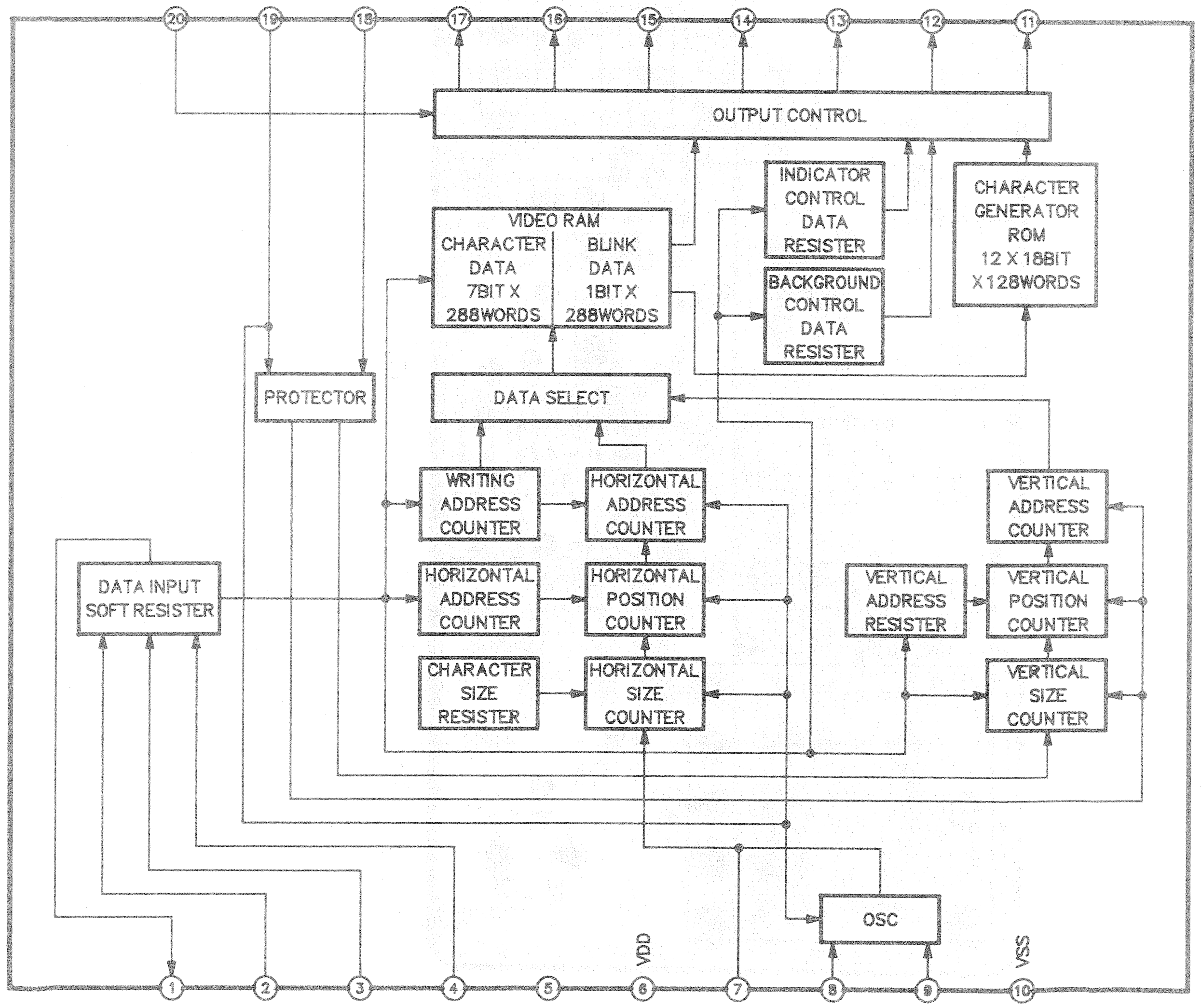
5.25 IC BLOCK DIAGRAMS

■ MAIN (MECHACON/SERVO)

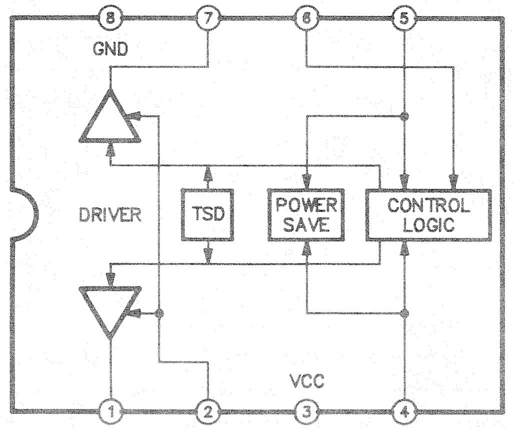
IC101


14
13
12
11
10
9
8
GND
VCC
+
−
1
2
3
4
5
6
7

IC302


20
19
18
17
16
15
14
13
12
11
OUTPUT CONTROL
INDICATOR CONTROL DATA RESISTER
CHARACTER GENERATOR ROM 12 X 18BIT X128WORDS
VIDEO RAM
CHARACTER DATA 7BIT X 288WORDS
BLINK DATA 1BIT X 288WORDS
BACKGROUND CONTROL DATA RESISTER
PROTECTOR
DATA SELECT
WRITING ADDRESS COUNTER
HORIZONTAL ADDRESS COUNTER
VERTICAL ADDRESS COUNTER
DATA INPUT SOFT RESISTER
HORIZONTAL ADDRESS COUNTER
HORIZONTAL POSITION COUNTER
VERTICAL ADDRESS RESISTER
VERTICAL POSITION COUNTER
CHARACTER SIZE RESISTER
HORIZONTAL SIZE COUNTER
VERTICAL SIZE COUNTER
OSC
VDD
VSS
1
2
3
4
5
6
7
8
9
10

IC303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TSD
POWER SAVE
CONTROL LOGIC
VCC
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3
4

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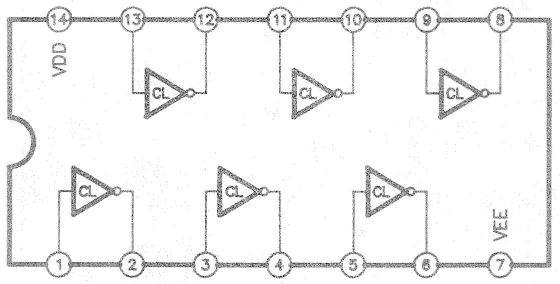
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VDD
CL
CL
CL
CL
CL
CL
VEE
1
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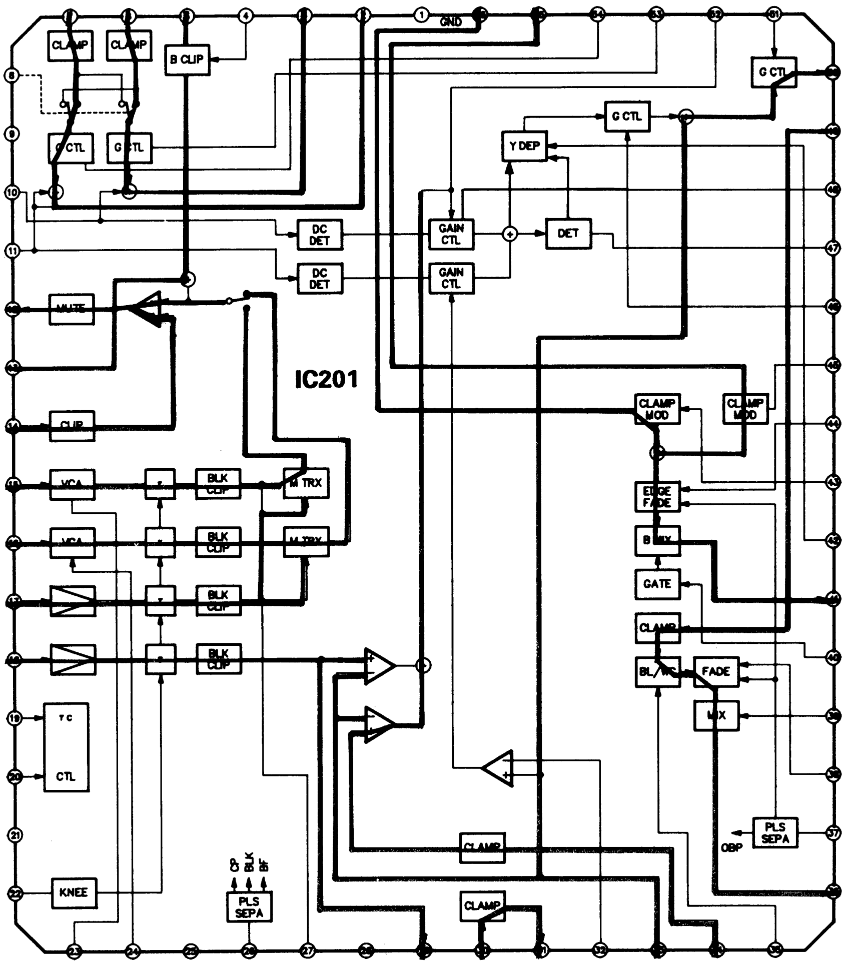
6
7

■ PROCESS

IC201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CLAMP
B CLIP
G CTL
G CTL
GND
G CTL
G CTL
Y DEP
DC DET
DC DET
GAIN CTL
GAIN CTL
DET
MUTE
CLIP
IC201
VCA
VCA
BLK CLIP
BLK CLIP
BLK CLIP
BLK CLIP
M TRX
M TRX
CLAMP MOD
CLAMP MOD
EDGE FADE
B MIX
GATE
CLAMP
BL/WC
FADE
MIX
PLS SEPA
OBP
TC
CTL
KNEE
CP
BLK
BF
PLS SEPA
CLAMP
CLAMP
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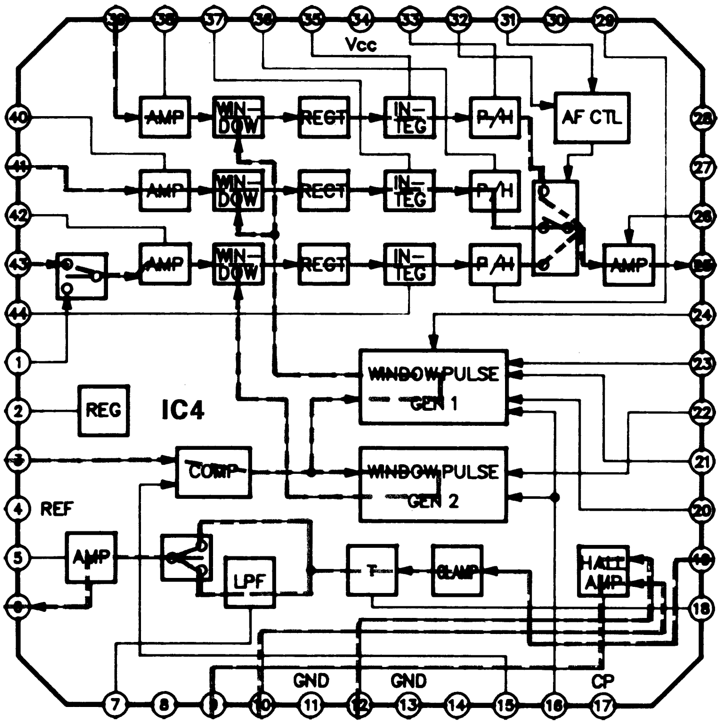
IC4



Vcc
AMP
WIN-DOW
RECT
IN-TEG
P/H
AF CTL
REG
IC4
COMP
REF
WINDOW PULSE GEN 1
WINDOW PULSE GEN 2
LPF
T
CLAMP
HALL AMP
GND
GND
CP

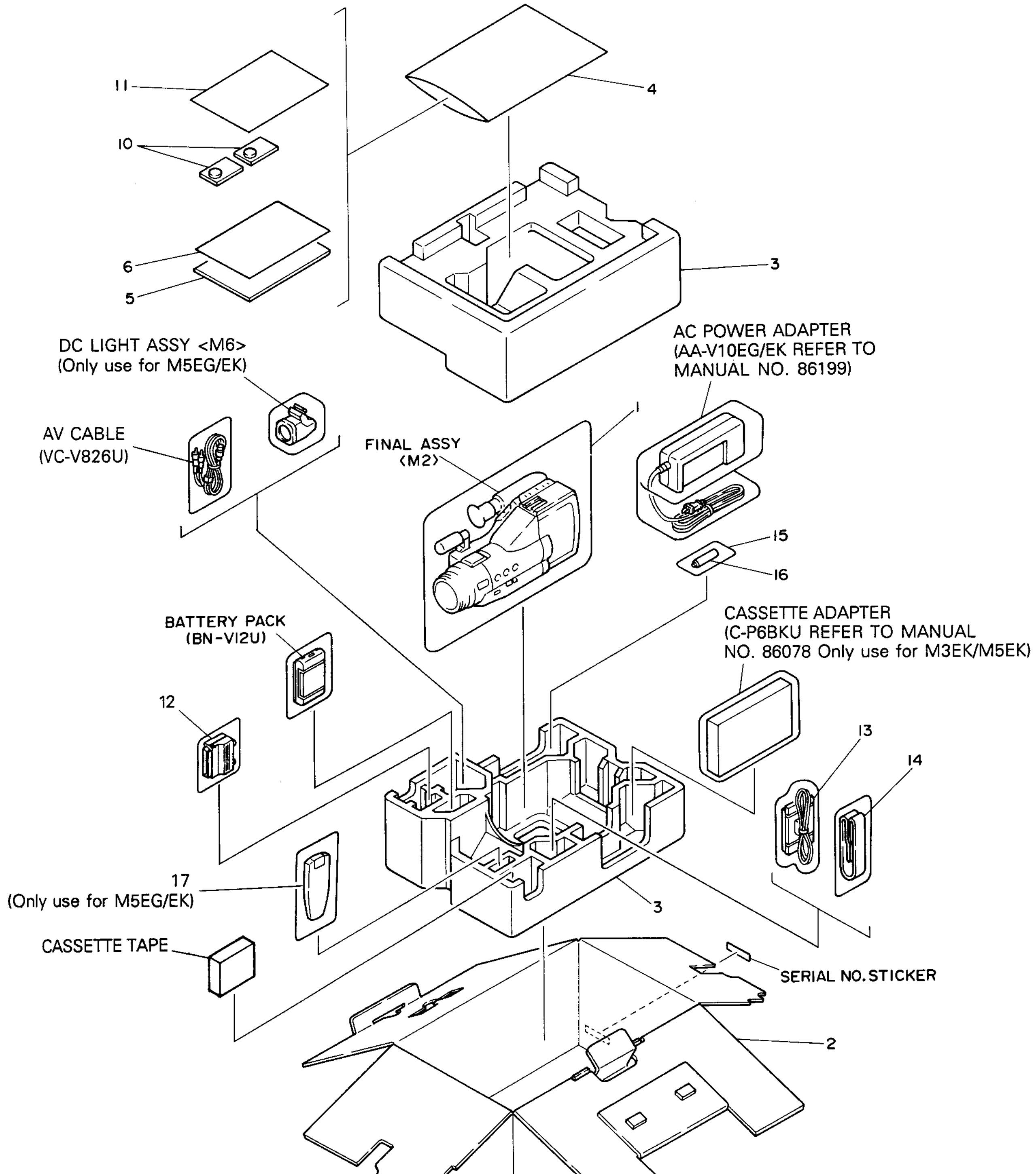
SECTION 6
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: <M > indicates mechanical symbol number.

6.1 PACKING ASSEMBLY < M1 >

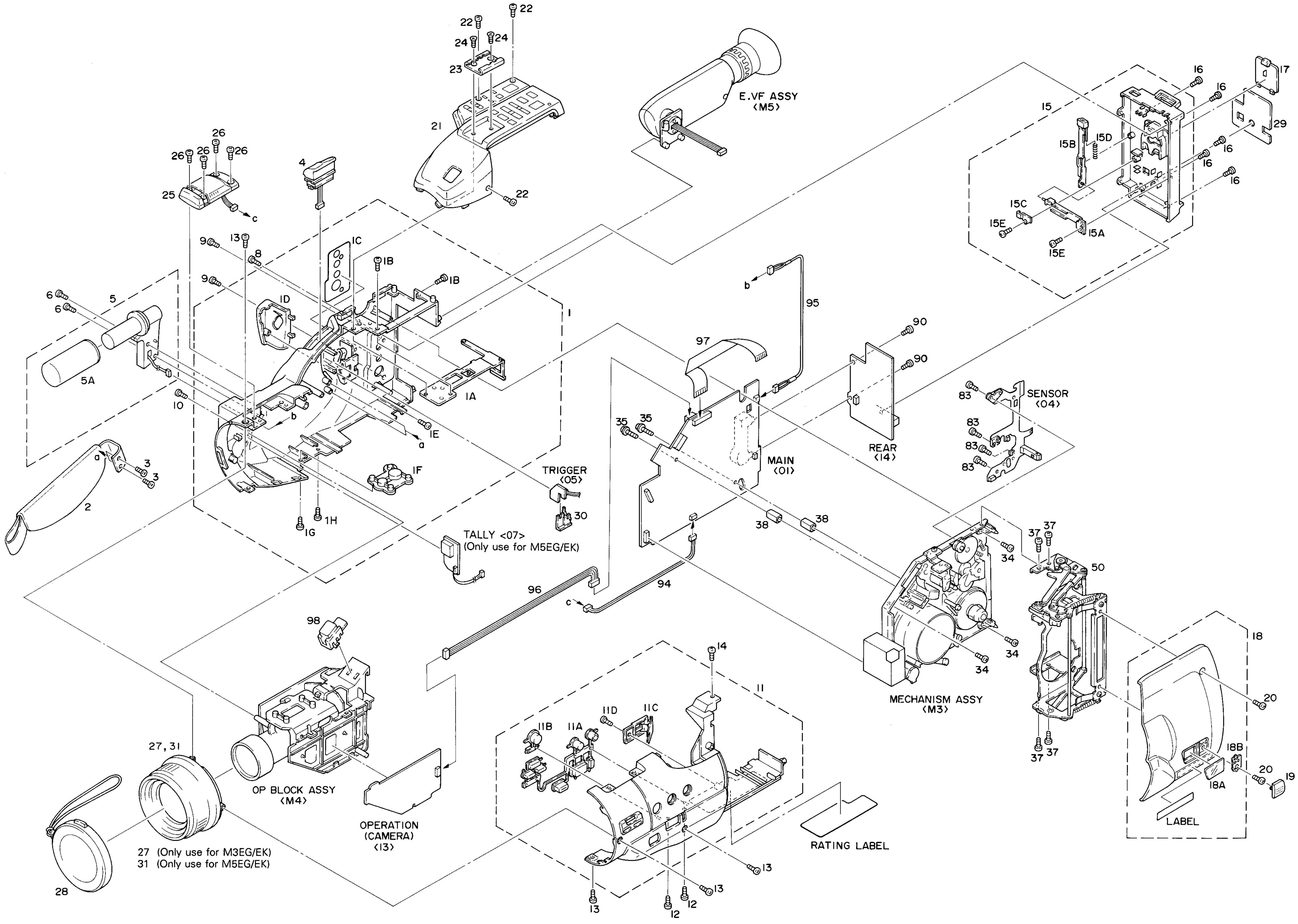

11
10
4
6
5
3
DC LIGHT ASSY <M6>
(Only use for M5EG/EK)
AC POWER ADAPTER
(AA-V10EG/EK REFER TO
MANUAL NO. 86199)
AV CABLE
(VC-V826U)
FINAL ASSY
<M2>
1
15
16
CASSETTE ADAPTER
(C-P6BKU REFER TO MANUAL
NO. 86078 Only use for M3EK/M5EK)
BATTERY PACK
(BN-V12U)
12
13
14
17
(Only use for M5EG/EK)
CASSETTE TAPE
3
SERIAL NO.STICKER
2

****

PACKING ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YQM30021-11	POLY BAG
	2	YQ31205-5	PACKING CASE,M3EG
	2	YQ31205-8	PACKING CASE,M3EK
	2	YQ31205-6	PACKING CASE,M5EG
	2	YQ31205-7	PACKING CASE,M5EK
	3	YQ31206A-2	CUSHION ASSY
	4	QPGA025-03505	POLY BAG,M3EG/M5EG
	4	PQM30023-5	POLY BAG,M3EK/M5EK
⚠	5	YU30052-285	INSTRUCTIONS,M3EG
⚠	5	YU30052-286	INSTRUCTIONS,M3EK
⚠	5	YU30052-287	INSTRUCTIONS,M5EG
⚠	5	YU30052-288	INSTRUCTIONS,M5EK
	6	BT-20066A	E.DISTRI.LIST,M3EK/M5EK
⚠	10	YU40547	BATTERY,M3EG/EK
⚠	10	YU40547	BATTERY,X2 M5EG/EK
	11	BT-20060	GUARANTY CARD,M3EK/M5EK
	12	PEMC0945	CONNECTOR
	13	PEAC0134	DC PLUG CORD
	14	YQ10188A-1	S STRAP ASSY,M3EK/M5EK
	15	QPGA005-01005	POLY BAG,M3EK/M5EK
	16	UM-3DJ	BATTERY,M3EK/M5EK
⚠	17	YQ20622	REMOTE CONTROLLER,M5EG/EK

6.2 FINAL ASSEMBLY < M2 >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22
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22
E.VF ASSY
(M5)
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26
26
25
c
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16
29
15
15B
15D
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15C
15E
15A
15E
9
13
8
IC
IB
IB
9
ID
6
6
5
5A
I
IA
10
b
IE
a
3
3
a
2
IF
1G
1H
TRIGGER
(05)
30
TALLY <07>
(Only use for M5EG/EK)
b
95
97
90
90
83
SENSOR
(04)
83
83
83
35
35
MAIN
(01)
REAR
(14)
38
38
37
37
34
50
34
34
MECHANISM ASSY
(M3)
37
37
96
94
c
98
OP BLOCK ASSY
(M4)
OPERATION
(CAMERA)
(13)
27, 31
27 (Only use for M3EG/EK)
31 (Only use for M5EG/EK)
28
14
11
11D
11C
11B
11A
13
13
13
12
12
RATING LABEL
18
20
18B
20
19
18A
LABEL

****

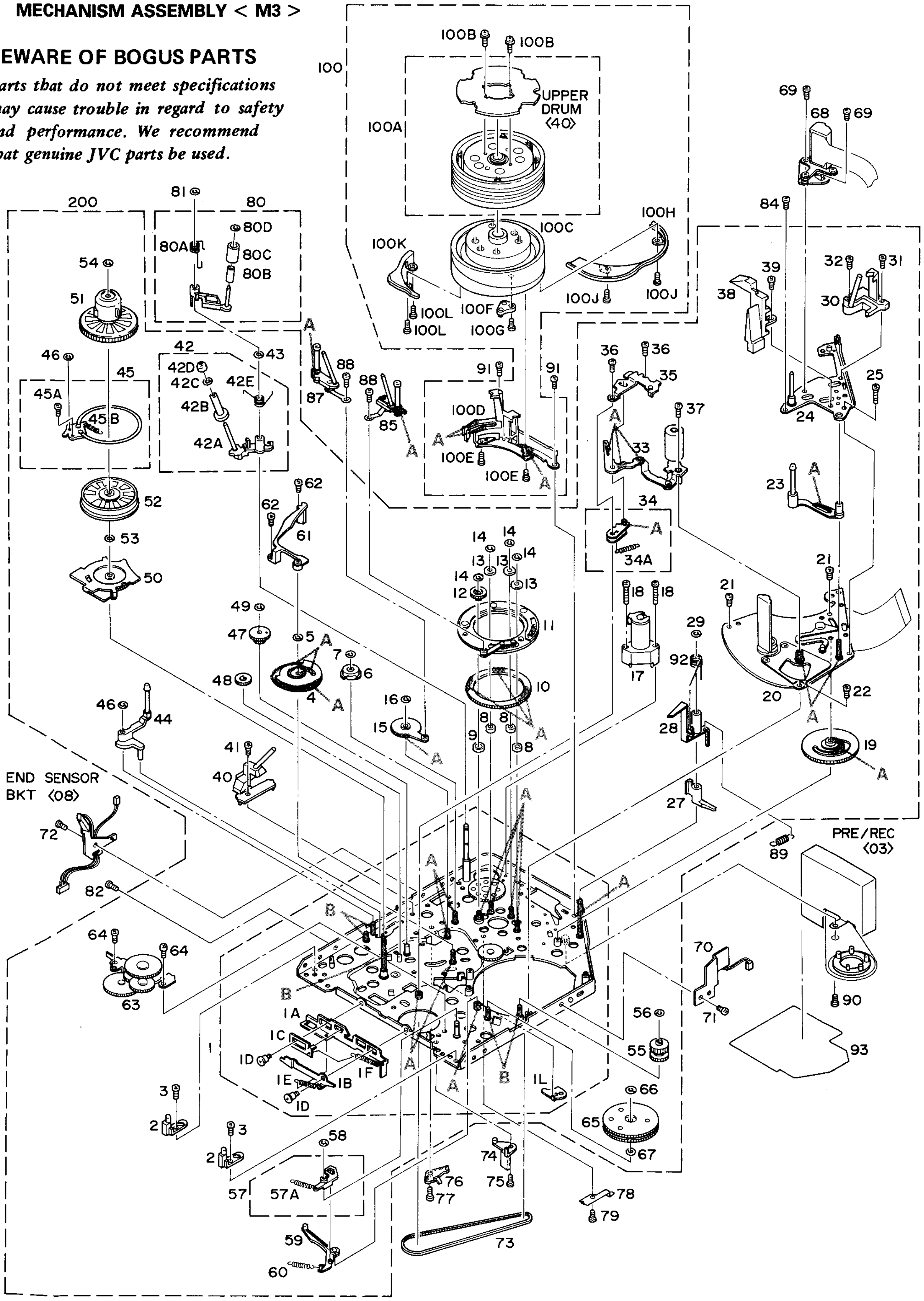
FINAL ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YQ10384D-4	LOWER CASE ASSY,M5EG/EK
⚠	1	YQ10384C-4	LOWER CASE ASSY,M3EG/EK
	1A	YQ31191	PLATE
	1B	SPSH2030Z	SCREW,X2
	1C	YQ31187	SHEET,M3EG/EK
	1C	YQ31187-2	SHEET,M5EG/EK
	1D	YQ31125-1-3	FINGER REST
	1E	YQM30052-3	SCREW,M2X5
	1F	YQ30756-1-6	BASE
	1G	YQM30032-4-2	SPECIAL SCREW,M2X6
	1H	YQM30032-44	SPECIAL SCREW,M2X4
	2	YQ20385-3-6	GRIP BELT
	3	YQM30032-42	SCREW,X2 M2.6X6
	4	YQ20631-1-2	ZOOM SWITCH
	5	YQ31213A	MICROPHONE
	5A	YQ31213-001	WIND SCREEN
	6	YQM30032-41	SPECIAL SCREW,X2 M2X11
	8	YQM30032-4-2	SPECIAL SCREW,M2X6
	9	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
	10	YQM30032-4-2	SPECIAL SCREW,M2X6
⚠	11	YQ20574C-2	UPPER CASE ASSY,M3EG/EK
⚠	11	YQ20574D-2	UPPER CASE ASSY,M5EG/EK
	11A	YQ31296	BUTTON(FADER),M3EG/EK
	11A	YQ31298	BUTTON(FADER),M5EG/EK
	11B	YQ42790	BUTTON(F.AUTO)
	11C	YQ31220A-1	TAPE GUIDE ASSY
	11D	YQM30032-40	SPECIAL SCREW,M2X4
	12	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
	13	YQM30032-4-2	SPECIAL SCREW,X4 M2X6
	14	SPSH2030Z	SCREW
⚠	15	YQ20575A-3	REAR COVER ASSY
	15A	YQ42792-1-2	KNOB(RELEASE)
	15B	YQ42793-1-2	KNOB(LOCK)
	15C	YQ42794	STOPPER
	15D	YQM30002-23	COMPRESSION SPRING
	15E	YQM30032-2-2	SPECIAL SCREW,X2 M2X5
	16	YQM30032-4-2	SPECIAL SCREW,X5 M2X6
⚠	17	YQ30772-2	CLOCK BATTERY COVER
⚠	18	YQ31190E-1	CASSETTE COVER ASSY,M3EG/EK
⚠	18	YQ31217D-2	CASSETTE COVER ASSY,M5EG/EK
	18A	YQ42712-2-1	CASSETTE WINDOW
	18B	YQ42711	JOINT
	19	YQ31207	CASSETTE HOLDER LOCK BUTTON
	20	YQM30032-3-2	SPECIAL SCREW,X2 M2X5
⚠	21	YQ10369-3	OPERATION UNIT,M3EG
⚠	21	YQ10369-4	OPERATION UNIT,M3EK
⚠	21	YQ10369-7	OPERATION UNIT,M5EG
⚠	21	YQ10369-8	OPERATION UNIT,M5EK
	22	YQM30032-4-2	SPECIAL SCREW,X3 M2X6
	23	YQ41974A-2	SHOE ASSY
	24	SSSK2006D	SCREW,X2
	25	YQ31186A	LIGHT SHOE ASSY
	26	YQM30032-4-2	SPECIAL SCREW,X4 M2X6
	27	YQ31192A	RING ASSY,M3EG/EK
	28	YQ42710A	HOOD CAP ASSY
⚠	29	YQ31297-2	BATTERY BASE SHEET
	30	YQ42538	TRIGGER BOARD HOLDER
	31	YQ20585A	FOCUS UNIT,M5EG/EK
	34	SPSF2006Z	SCREW,X3
	35	YDM4031-2	SCREW,X2
	37	SSSH1730M	SCREW,X4
	38	YU41945	SPACER,X2
	50	YQ31059A-5	HOUSING ASSY
	83	SPSH1725M	SCREW,X4
	90	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
	94	ML-Y00653B	LAMP WIRE
	95	ML-Y00645A	MIC WIRE
	96	ML-Y00646A	SIDE OPE WIRE
	97	PEWR0640	FFC
	98	YQ31221A-1	WHITE BALANCE SENSOR ASSY

6.3 MECHANISM ASSEMBLY < M3 >

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.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57A
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60
73
A
B

Classification	Name	Part No.	Symbol in drawing
Grease	Moriton Grease No. 1	MOS2-C	A
Oil	Cosmo Hydro HV100	YTU94027	B

Note: The section marked in **A and B** indicate lubrication and greasing areas.

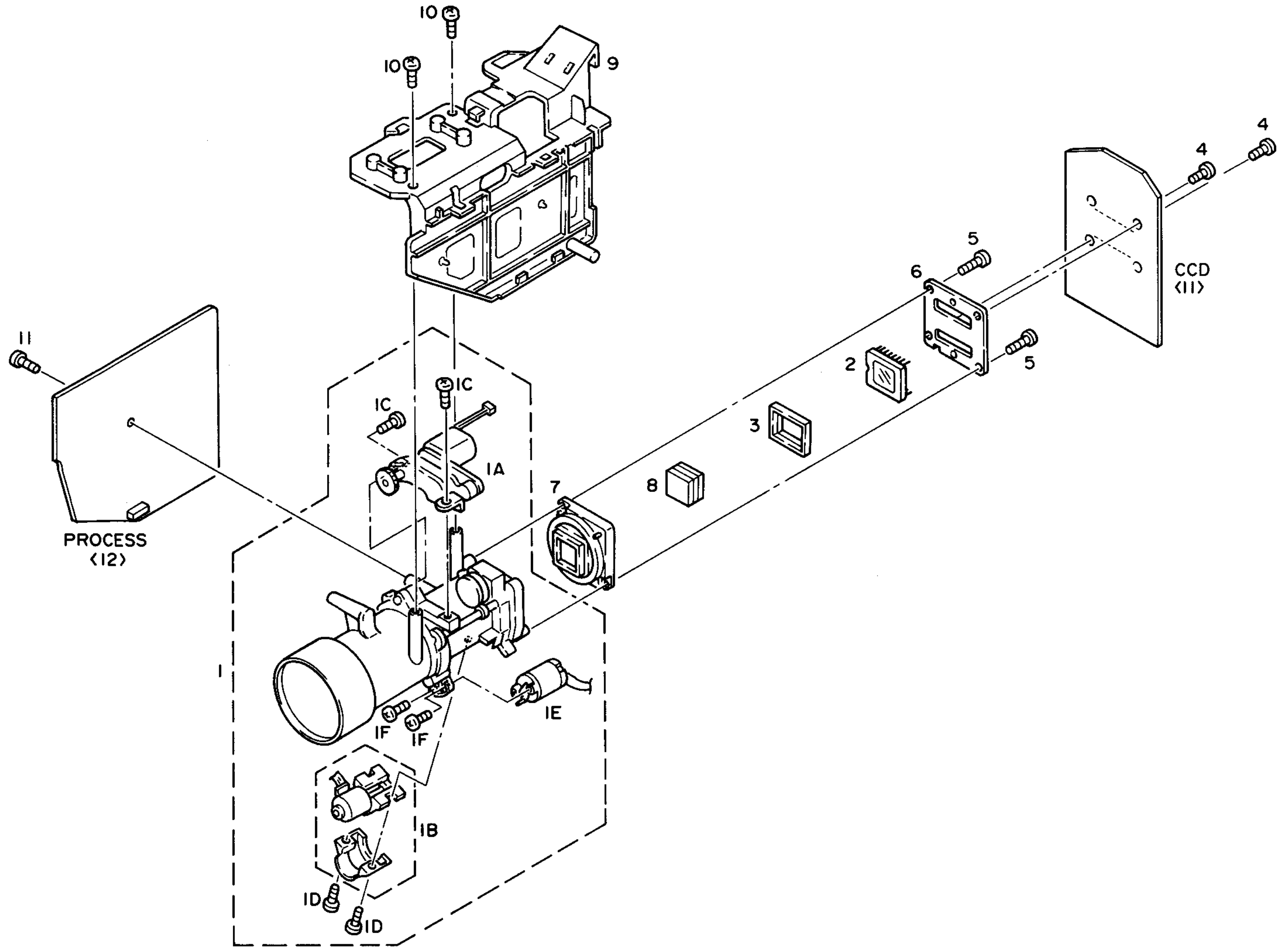
* *

MECHANISM ASSEMBLY <M3>

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YQ10329A-6	MAIN DECK ASSY
	1A	YQ31210-1-1	LOCK PLATE
	1B	YQ42757-1-3	CANCEL PLATE
	1C	YQ42756A-2	LIMIT PLATE ASSY
	1D	YQ42375-2	SPECIAL SCREW,X2 M1.4X0.9
	1E	YQ42866	TENSION SPRING
	1F	YQ42866-2	TENSION SPRING
	1L	YQ42759	SUPPORT PLATE
	2	YQ42377-1-2	GUIDE PIN,X2
	3	SPSH1735M	SCREW,X2
	4	YQ20525-1-2	CTL CAM GEAR
	5	PQM30017-25	SLIT WASHER
	6	YQ42234-1-3	LOADING GEAR 2
	7	PQM30017-27	SLIT WASHER
	8	YQ42141	LOADING GUIDE,X3
	9	YQ41902-1-1	LOADING GUIDE 2
	10	YQ42378	DRIVE GEAR
	11	YQ42379A-2	LOADING RING ASSY
	12	YQ42048	SUPPLY MIDDLE GEAR
	13	YQ41904	L.WASHER,X3
	14	PQM30017-27	SLIT WASHER,X4
	15	YQ42384A	SUPPLY LINK GEAR ASSY
	16	PQM30017-27	SLIT WASHER
△	17	YU41889	MODE CTL MOTOR
	18	SPSH1710M	SCREW,X2
	19	YQ31328-1-1	MIDDLE POLE CAM GEAR
△	20	YU41890-1-2	CAPSTAN MOTOR
	21	SPSH1725M	SCREW,X2
	22	SPSH1730M	MINI SCREW
	23	YQ42385A-1	MIDDLE POLE ARM ASSY
	24	YQ42391A	SUB DECK ASSY
	25	SPSH1760M	SCREW
	27	YQ42396	LOCK ARM(1)
	28	YQ42397A-1	LOCK ARM(2) ASSY
	29	PQM30017-25	SLIT WASHER
	30	YQ42400A-2	MIDDLE POLE CATCHER ASSY
	31	SPSH1735M	SCREW
	32	SPSH1760M	SCREW
	33	YQ31231A-2	PINCH ROLLER ARM ASSY
	34	YQ42199A	SPRING PLATE ASSY
		or YQ41544A	SPRING PLATE ASSY
	34A	YQ41551-1	TENSION SPRING
	35	YQ41553-1-8	GUIDE PLATE
	36	SPSH1425M	SCREW,X2
	37	YQM30032-21	SPECIAL SCREW,M1.7X3
	38	YQ31153	CASSETTE BLOCK
	39	SPSH1735M	SCREW
	40	YQ42407A-1	SUPPLY SLANT POLE ASSY
	41	SPSH1735M	SCREW
	42	YQ42701A-1	IMPEDANCE ROLLER ARM ASSY
	42A	YQ42702A	IMPEDANCE ROLLER ARM SUB ASSY
	42B	YQ42704A-1	IMPEDANCE ROLLER ASSY
	42C	PQM30017-27	SLIT WASHER
	42D	YQ42740	CAP
	42E	YQ42413	TORSION SPRING
	43	PQM30017-25	SLIT WASHER
	44	YQ42420A-2	TENSION ARM ASSY
	45	YQ42423A	BAND ARM ASSY
	45A	YQM30032-46	SPECIAL SCREW,M1.4X3.5
	45B	YQ42429	TENSION SPRING
	46	PQM30017-27	SLIT WASHER,X2
	47	YQ41559-1-2	ENCODER GEAR(1)
	48	YQ41560	ENCODER GEAR(2)
	49	PQM30017-27	SLIT WASHER

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	50	YU41407-1-3	CAM SWITCH ASSY F
	51	YQ42485A	SUPPLY RELL DISC ASSY
	52	YQ42487A	BAND REEL ASSY
	53	Q03093-835	WASHER
	54	PQM30017-27	SLIT WASHER
	55	YQ42773	TAKE UP GEAR
	56	PQM30017-27	SLIT WASHER
	57	YQ41628A	SEARCH BRAKE SUB ASSY
	57A	YQ41551-2	TENSION SPRING
	58	PQM30017-27	SLIT WASHER
	59	YQ31170-1-2	BRAKE DRIVE LEVER
	60	YQ42835	TENSION SPRING
	61	YDM2062-2	SUPPLY GUIDE RAIL
	62	SPSH1735M	SCREW,X2
	63	YU41892-1-2	CLUTCH UNIT
		or YQ42549A-2	CLUTCH UNIT
	64	SPSH1725M	SCREW,X2
	65	YU41459-1-2	TAKE-UP CLUTCH ASSY
		or YQ42602A	TAKE-UP CLUTCH ASSY
	66	PQM30017-27	SLIT WASHER
	67	Q03093-835	WASHER
	68	YQ42430B-3	AUDIO/CONTOROL HEAD FINAL ASSY
	69	YQ40904A-1	ALOCK SCREW,X2
	70	YU41926	DEW SENSOR
		or YU41958	DEW SENSOR
	71	SPSH1720M	SCREW
	72	SPSH1735M	SCREW
	73	YQ41558	TIMING BELT
	74	YQ31280	PWB HOLDER
	75	SPSH1725M	SCREW
	76	YQ31058	LED GUIDE
	77	SPSH1725M	SCREW
	78	YU41447-1-4	BRUSH
	79	SPSH1735M	SCREW
	80	YQ42414A-2	HEAD CLEANER ASSY
	80A	YQ42417-1-1	TORSION SPRING
	80B	YQ42418	ROLLER
	80C	YQ42419	CLEANER
	80D	YQM30017-8	SLIT WASHER
	81	PQM30017-25	SLIT WASHER
	82	YQ42842	SPECIAL SCREW,M1.7X4.5
	84	SPSK1720M	SCREW
	85	YU41911-1-2	TAKE-UP POLE BASE ASSY
	87	YQ42787A-2	SUPPLY POLE BASE ASSY
	88	YQ42009	SPECIAL SCREW,X2 M1.2X1.5
	89	YQM30001-58	TENSION SPRING
	90	SPSN1740Z	SCREW
	91	YQ42886	SPECIAL SCREW,X2 M1.7X3.4
	92	YQ42399-1-2	TORSION SPRING
	93	YU41962	SHIELD PLATE
	100	YDV2052A	DRUM ASSY,M3EK/M5EK
	100	YDV2053A	DRUM ASSY,M3EG/M5EG
	100A	YDM2058A	UPPER DRUM ASSY,M3EK/M5EK
	100A	YDM2058C	UPPER DRUM ASSY,M3EG/M5EG
	100B	YDM4031	SCREW,X2
	100C	YDM2060C	LOWER DRUM ASSY
	100D	YDM2056-1-4	UV BASE
	100E	YQ42886	SPECIAL SCREW,X2 M1.7X3.4
	100F	YDM4073	DRUM SPACER
	100G	SPSK1734M	SCREW
	100H	YDM2063-1-3	TU GUIDE RAIL
	100J	SPSH1725M	SCREW,X2
	100K	YDM2062	SUP GUIDE RAIL
	100L	SPSH1725M	SCREW,X2
△	200	YMA0010A	MECHA(A) ASSY

6.4 OPTICAL BLOCK ASSEMBLY < M4 >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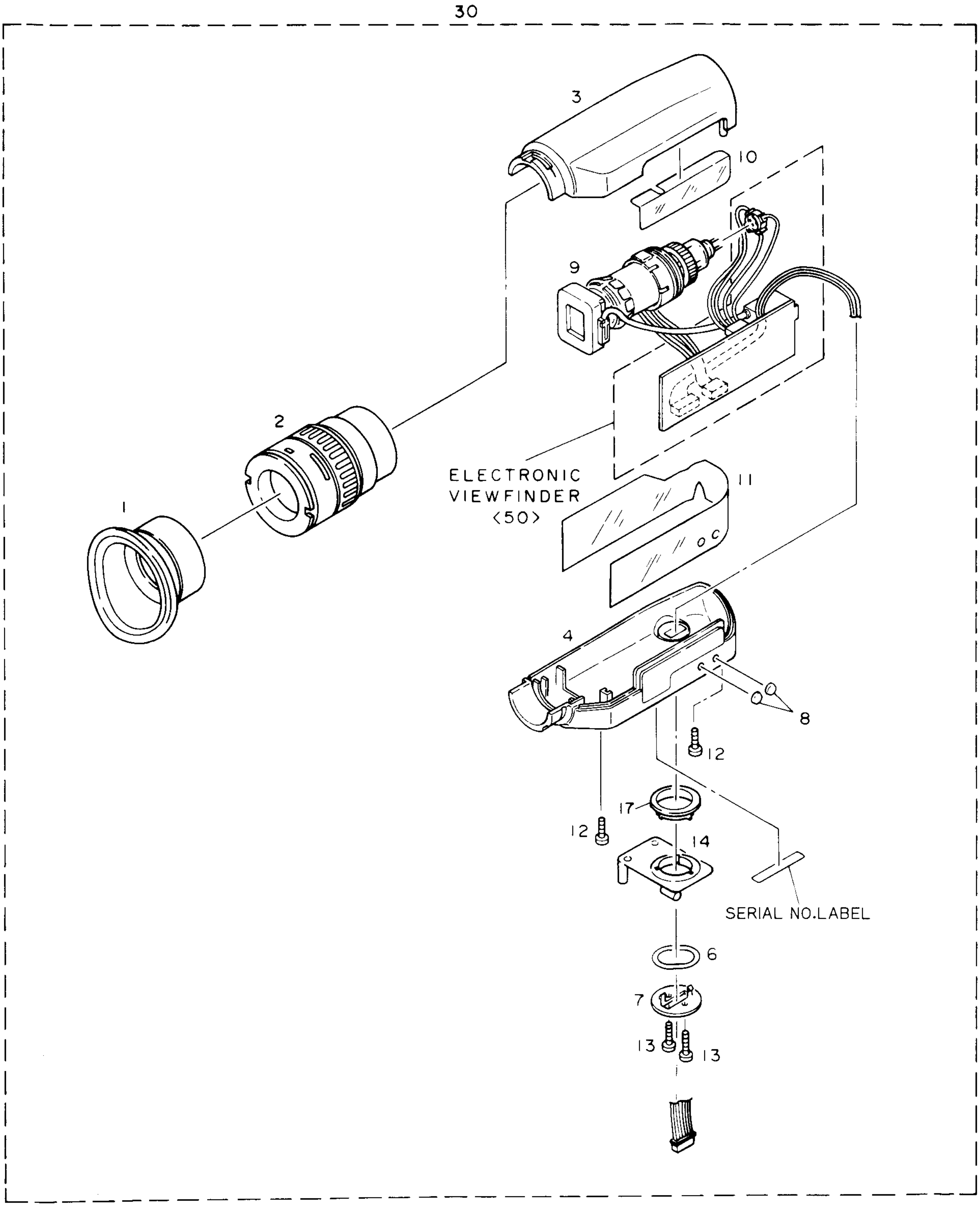
1D

****

OPTICAL BLOCK ASSEMBLY <M4>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	YU30653	OP BLOCK ASSY
1A	YU30653-001	ZOOM MOTOR UNIT
1B	YU30653-002	FOCUS MOTOR UNIT
1C	YU30653-003	SCREW,X2
1D	YU30653-004	SCREW,X2
⚠ 1E	YU30653-006	IRIS MOTOR
1F	YU30653-010	SCREW,X2
⚠ 2	MN3726FE	CCD ASSY
3	YQ42532	SPACER RUBBER
4	SPSP2004Z	SCREW,X2
5	SPSN2080D	SCREW,X2
6	YQ42781	CCD BASE
7	YQ31249	OPTICAL LPF HOLDER
8	YU41944	OPTICAL LPF
9	YQ20590-1-6	FRAME
10	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
11	YQM30032-4-2	SPECIAL SCREW,M2X6

6.5 ELECTRONIC VIEWFINDER ASSEMBLY < M5 >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VIEWFINDER
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SERIAL NO.LABEL
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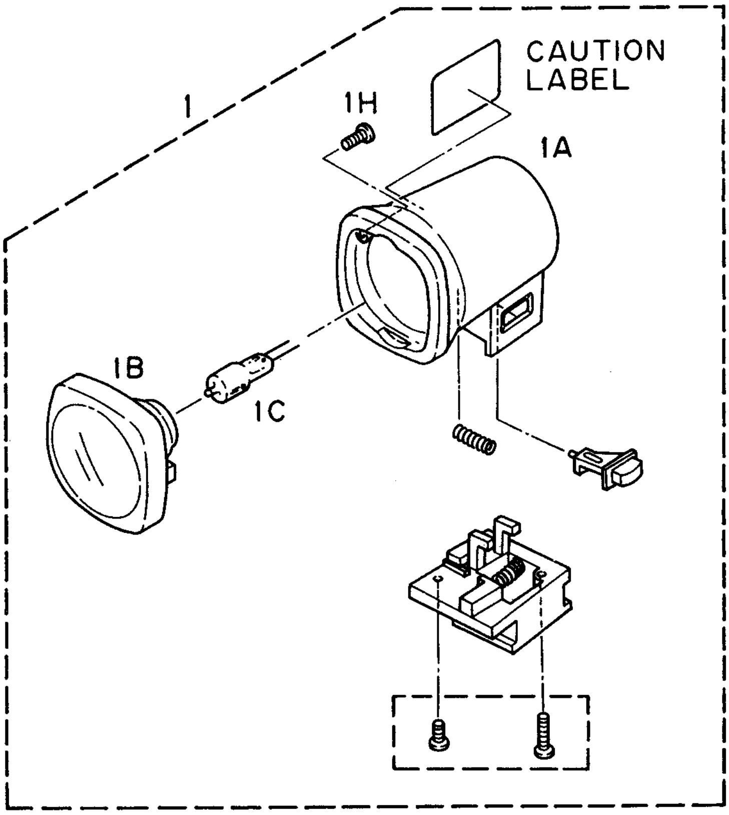
ELECTRONIC VIEWFINDER ASSEMBLY <M5>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YU30407-041	EYE CAP
	2	YU30595-005	LENS ASSY
⚠	3	YU30595-001	TOP CASE
⚠	4	YU30595-002	BOTTOM CASE
	6	YU30407-052	WAVEWASHER
	7	YU30407-053	SHOE COVER
	8	YU30045-024	CAP,X2
⚠	9	YU30595-011	CRT/DAY ASSY
	10	YU30407-055	INSULATOR1
	11	YU30407-056	INSULATOR2
	12	YU30045-014	SCREW,X2 M1.7X5
	13	YU30236-017	SCREW,X2 M2X8
	14	YQ31304-001	MOUNTING PLATE
	17	YU30407-057	BUSHIMG
⚠	30	YQ31304B	EVF ASSY

6.10 DC LIGHT ASSEMBLY (VL-V4EG/EK) [M5EG/EK] < M6 >



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DC LIGHT ASSEMBLY, M5EG/EK <M6>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	—	DC LIGHT ASSY
⚠ 1A	YQ31336-008	LAMP CASE,M5EK
⚠ 1A	YQ31336-010	LAMP CASE,M5EG
⚠ 1B	YQ31336-002	FRONT CASE ASSY
⚠ 1C	YQ31040-001	DC LIGHT BULB
1H	YQ31336-009	SCREW,M5EK

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: < 2 digits > indicates circuit board symbol number.

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MAIN BOARD ASSEMBLY <01>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB10110A-03	MAIN BOARD ASSY,M3EK
PWBA	YB10110B-03	MAIN BOARD ASSY,M5EK
PWBA	YB10110D-03	MAIN BOARD ASSY,M3EG
PWBA	YB10110E-03	MAIN BOARD ASSY,M5EG
IC1	MB3775PFV	IC
IC101	BA6405F	IC
IC201	VC5035	IC
IC251	JCM5038	IC
IC301	SC78146GF-013	IC
IC302	BU5946AFS	IC
IC303	BA6287F	IC
IC304	BU4584BF	IC
	or XRU4584BF	IC
IC305	BA10339F	IC
IC306	MM1065GM	IC
IC307	S-80748AN-JC	IC
IC308	S-8052HNM-CR	IC
IC309	UPC1093T	IC
IC310	TC7S04F	IC
IC401	BA7751AFS	IC
IC402	BA15218F	IC
	or XRA15218F	IC
IC501	BH7517K1	IC
IC502	MM1031XM	IC
IC503	TL8809F	IC
IC504	NJM2233BM	IC
Q1	DTC143XU	TRANSISTOR
Q2	DTA143EU	TRANSISTOR
Q3	FC122	TRANSISTOR
Q4	2SA1641(ST)	TRANSISTOR
Q5	FC122	TRANSISTOR
Q6	2SB1302(ST)	TRANSISTOR
Q51	2SA1577(RS)	TRANSISTOR
Q52	2SC4081(R)	TRANSISTOR
Q53	2SC4081(R)	TRANSISTOR
Q54	2SC4081(R)	TRANSISTOR
Q103	2SC4617(RS)	TRANSISTOR
Q104	2SA1774(RS)	TRANSISTOR
Q251	2SA1576(QR)	TRANSISTOR
Q301	2SA1576(QRS)	TRANSISTOR
Q302	DTA114EU	TRANSISTOR
Q303	DTA114EU	TRANSISTOR
Q304	DTA144TU	TRANSISTOR
Q305	DTC114EU	TRANSISTOR
Q306	DTC114EU	TRANSISTOR
Q307	2SA1576(QRS)	TRANSISTOR
Q308	DTC114EU	TRANSISTOR
Q401	2SD1328(ST)	TRANSISTOR
Q402	DTA143EE	TRANSISTOR
Q403	DTA143EE	TRANSISTOR
Q404	2SC4617(RS)	TRANSISTOR
Q405	FMW3	TRANSISTOR
Q406	DTA124EE	TRANSISTOR
Q407	DTC124EE	TRANSISTOR
Q408	2SD1328(ST)	TRANSISTOR,M5EG/EK
Q410	2SD1328(ST)	TRANSISTOR,M5EG/EK
Q501	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q502	DTC144EE	TRANSISTOR,M3EK/M5EK
Q503	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q504	DTC144EE	TRANSISTOR,M3EK/M5EK
Q505	DTC144EE	TRANSISTOR
Q506	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q507	DTA144EE	TRANSISTOR
Q509	2SC4617(QRS)	TRANSISTOR
Q510	2SC4617(QRS)	TRANSISTOR
Q511	2SC4617(QRS)	TRANSISTOR
Q512	2SA1774(QRS)	TRANSISTOR
Q513	2SC4617(QRS)	TRANSISTOR
Q514	2SC4617(QRS)	TRANSISTOR
Q515	DTC144EE	TRANSISTOR,M3EK/M5EK
Q517	2SC4617(QRS)	TRANSISTOR
Q518	DTC144EE	TRANSISTOR,M3EK/M5EK
Q520	DTA144EE	TRANSISTOR,M3EK/M5EK
Q521	2SA1577(QR)	TRANSISTOR
Q522	DTA144EE	TRANSISTOR
	or UN9113	TRANSISTOR
Q523	2SA1577(QR)	TRANSISTOR
Q524	2SA1577(QR)	TRANSISTOR
Q525	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q526	2SA1577(QR)	TRANSISTOR
Q527	2SC4617(QRS)	TRANSISTOR
Q529	2SA1577(QR)	TRANSISTOR
Q532	2SA1774(QRS)	TRANSISTOR
Q533	2SA1774(QRS)	TRANSISTOR

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q534	DTC144EE	TRANSISTOR	
	D1	DAN202U	DIODE	
	D2	SB05-05CP	DIODE	
	D3	MA30(A)	DIODE	
	D4	MA30(A)	DIODE	
	D5	SB05-05CP	DIODE	
	D101	DA221	DIODE	
	D102	DAN222	DIODE	
	D201	MA132WK	DIODE	
	D202	MA132WK	DIODE	
	D301	FC805	DIODE	
△	D302	MA704WA	DIODE	
△	D303	MA704	DIODE	
	D305	SB05-03Q	DIODE	
	D306	RD6.8M(B1)	ZENER DIODE	
	D308	RD6.8M(B1)	ZENER DIODE	
	D309	DAN202U	DIODE	
	D310	RD22M(B1-3)	ZENER DIODE	
	D311	DAN202U	DIODE	
	D312	DAN202U	DIODE,M5EG/EK	
	D313	DAN202U	DIODE	
	D314	MA716	DIODE	
	D315	DAN202U	DIODE	
	D501	DAN202U	DIODE	
	D502	DAN202U	DIODE	
	D503	DAN202U	DIODE	
	D504	DA204U	DIODE	
	D505	DA204U	DIODE	
	R1	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R2	QRSA08J-432YN	RESISTOR	4.3KΩ,1/10W
	R3	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R4	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R5	NRVA63D-153N	RESISTOR	15KΩ,1/16W
	R6	NRVA63D-152N	RESESTOR	1.5KΩ,1/6W
	R7	NRVA63D-182N	RESESTOR	1.8KΩ,1/6W
	R8	NRVA63D-822N	RESISTOR	8.2KΩ,1/16W
	R9	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R10	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R11	NRSA63J-221N	RESISTOR	220Ω,1/16W
	R12	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R13	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R14	NRVA63D-222N	RESISTOR	2.2KΩ,1/16W
	R15	NRVA63D-392N	RESISTOR	3.9KΩ,1/16W
	R16	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R17	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R18	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R19	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R20	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R21	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R22	NRVA63D-682N	RESISTOR	6.8KΩ,1/16W
	R23	NRVA63D-112N	RESISTOR	1.1KΩ,1/16W

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R25	NRSA63J-0R0N	RESISTOR	0Ω,1/16
	R51	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R52	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R53	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R54	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R55	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R56	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R57	NRSA63J-5R6N	RESISTOR	5.6Ω,1/16W
	R58	NRSA63J-5R6N	RESISTOR	5.6Ω,1/16W
	R101	NRSA63J-221N	RESISTOR	220Ω,1/16W
	R103	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R104	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R105	NRSA63J-474N	RESISTOR	470KΩ,1/16W
	R107	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R112	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R113	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R114	NRSA63J-474N	RESISTOR	470KΩ,1/16W
	R115	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R116	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R117	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R118	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	R119	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R120	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R121	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R122	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R123	NRSA63J-202N	RESISTOR	2KΩ,1/16W
	R124	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R125	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R126	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R127	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R128	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R129	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R130	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R132	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R133	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R134	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R135	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R137	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R138	NVP1308-103N	V RESISTOR,PB SW POINT	10KΩ
	R139	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R140	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R142	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R201	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
	R202	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
	R203	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
	R204	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R205	NRSA63J-121N	RESISTOR	120Ω,1/16W
	R206	NRSA63J-393N	RESISTOR	39KΩ,1/16W
	R207	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R208	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R209	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R210	NRSA63J-154N	RESISTOR	150KΩ,1/16W
	R211	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R212	NRSA63J-333N	RESISTOR	33KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R213	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R214	YU41353-R68N	RESISTOR	0.68Ω,1/2W
	R251	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
	R252	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
	R253	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
	R254	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R255	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R256	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R257	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	R258	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R259	NRSA63J-162N	RESISTOR	1.6KΩ,1/16W
	R260	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R261	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R262	NRSA63J-243N	RESISTOR	24KΩ,1/16W
	R263	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R264	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R267	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R268	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R269	YU41353-R47N	RESISTOR	0.47Ω,1/2W
	R270	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	R271	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R301	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R303	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R304	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R306	NRSA63J-103N	RESISTOR,M3EG/M5EG	10KΩ,1/16W
	R307	NRSA63J-103N	RESISTOR,M3EK/M5EK	10KΩ,1/16W
	R308	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R309	NRVA62D-103N	RESISTOR	10KΩ,1/16W
	R310	NRVA62D-103N	RESISTOR	10KΩ,1/16W
	R311	NRVA62D-623N	RESISTOR	62KΩ,1/16W
	R312	QRSA08J-302YN	RESISTOR	3KΩ,1/10W
	R313	NRVA62D-683N	RESISTOR	68KΩ,1/16W
⚠	R314	NRSA63J-102N	RESISTOR	1KΩ,1/16W
⚠	R315	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R316	NRSA63J-684N	RESISTOR	680KΩ,1/16W
	R317	NRSA63J-125N	RESISTOR	1.2MΩ,1/16W
	R318	NRSA63J-125N	RESISTOR	1.2MΩ,1/16W
	R319	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R320	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R321	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R322	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R323	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R324	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R325	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R326	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R327	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R328	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R329	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R330	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R331	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R332	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R333	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R334	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R335	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R336	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R337	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R339	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R340	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R341	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R342	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R343	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R344	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R345	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R346	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R347	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R348	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R349	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R350	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R351	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R352	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R353	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R354	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R355	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R356	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R357	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R358	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R359	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R360	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R361	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R362	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R363	NRSA63J-224N	RESISTOR	220KΩ,1/16W
	R364	NRSA63J-124N	RESISTOR	120KΩ,1/16W
	R365	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R366	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R367	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R368	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R369	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R370	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R372	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R374	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R375	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R376	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R377	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R378	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R379	NRSA63J-0R0N	RESISTOR,M5EG/EK	0Ω,1/16W
	R380	NRSA63J-474N	RESISTOR	470KΩ,1/16W
	R381	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R382	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R383	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R384	NRSA63J-751N	RESISTOR	750Ω,1/16W
	R385	NRSA63J-751N	RESISTOR	750Ω,1/16W
	R386	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R387	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	R388	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R389	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R390	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R391	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R392	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R393	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R394	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R395	NRSA63J-474N	RESISTOR	470KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
R396	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R397	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R399	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R401	QRSA08J-222YN	RESISTOR 2.2KΩ,1/10W
R402	NRSA63J-101N	RESISTOR 100Ω,1/16W
R403	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R404	NRSA63J-563N	RESISTOR 56KΩ,1/16W
R405	NRSA63J-331N	RESISTOR 330Ω,1/16W
R406	NRSA63J-0R0N	RESISTOR 0Ω,1/16W
R407	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R408	NVP1308-681N	V RESISTOR,PB AUDIO LEVEL 680Ω
R409	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R410	NRSA63J-124N	RESISTOR 120KΩ,1/16W
R411	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R412	NRSA63J-100N	RESISTOR 10Ω,1/16W
R413	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R414	QRSA08J-2R2YN	RESISTOR 2.2Ω,1/10W
R415	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R416	NVP1308-473N	V RESISTOR,BIAS LEVEL 47KΩ
R417	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R418	NRSA63J-272N	RESISTOR 2.7KΩ,1/16W
R419	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R420	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R421	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R422	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R423	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R424	NRSA63J-513N	RESISTOR 51KΩ,1/16W
R425	NRSA63J-331N	RESISTOR 330Ω,1/16W
R426	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R427	NRSA63J-561N	RESISTOR 560Ω,1/16W
R428	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R429	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R430	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R431	NRSA63J-563N	RESISTOR 56KΩ,1/16W
R432	NRSA63J-683N	RESISTOR 68KΩ,1/16W
R433	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R434	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R435	NRSA63J-561N	RESISTOR 560Ω,1/16W
R436	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R437	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R438	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R439	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R440	NRSA63J-105N	RESISTOR 1MΩ,1/16W
R441	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R442	NRSA63J-103N	RESISTOR,M5EG/EK 10KΩ,1/16W
R442	NRSA63J-104N	RESISTOR,M3EG/EK 100KΩ,1/16W
R443	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R444	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R445	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R447	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R448	QRSA08J-471YN	RESISTOR 470Ω,1/10W
R449	QRSA08J-471YN	RESISTOR 470Ω,1/10W
R450	QRSA08J-471YN	RESISTOR 470Ω,1/10W
R451	QRSA08J-471YN	RESISTOR 470Ω,1/10W
R452	QRSA08J-683YN	RESISTOR 68KΩ,1/10W
R458	NRSA63J-123N	RESISTOR 12KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
R459	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R460	NRSA63J-0R0N	RESISTOR,M3EG/EK 0Ω,1/16W
R468	QRSA08J-121YN	RESISTOR,M5EG/EK 120Ω,1/10W
R469	QRSA08J-121YN	RESISTOR,M5EG/EK 120Ω,1/10W
R470	QRSA08J-121YN	RESISTOR,M5EG/EK 120Ω,1/10W
R471	QRSA08J-121YN	RESISTOR,M5EG/EK 120Ω,1/10W
R472	NRSA63J-682N	RESISTOR,M5EG/EK 6.8KΩ,1/16W
R473	NRSA63J-331N	RESISTOR,M5EG/EK 330Ω,1/16W
R474	NRSA63J-563N	RESISTOR,M5EG/EK 56KΩ,1/16W
R482	QRSA08J-681YN	RESISTOR,M5EG/EK 680Ω,1/10W
R486	NRSA63J-0R0N	RESISTOR 0Ω,1/16W
R502	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R503	NRSA63J-152N	RESISTOR 1.5KΩ,1/16W
R504	NRSA63J-391N	RESISTOR 390Ω,1/16W
R505	NRSA63J-332N	RESISTOR,M3EG/M5EG 3.3KΩ,1/16W
R506	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R507	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R508	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R509	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R510	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R511	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R512	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R513	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R514	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R515	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R516	NRSA63J-471N	RESISTOR 470Ω,1/16W
R517	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R519	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R520	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R521	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R522	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R523	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R524	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R525	NRSA63J-152N	RESISTOR 1.5KΩ,1/16W
R526	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R527	NRSA63J-105N	RESISTOR 1MΩ,1/16W
R528	NRSA63J-103N	RESISTOR,M3EK/M5EK 10KΩ,1/16W
R529	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R530	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R531	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R532	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R534	NRSA63J-561N	RESISTOR 560Ω,1/16W
R536	NRSA63J-184N	RESISTOR 180KΩ,1/16W
R537	NRSA63J-683N	RESISTOR 68KΩ,1/16W
R538	NRSA63J-221N	RESISTOR 220Ω,1/16W
R539	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R540	NRSA63J-152N	RESISTOR,M3EK/M5EK 1.5KΩ,1/16W
R542	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R543	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R544	NRSA63J-391N	RESISTOR,M3EK/M5EK 390Ω,1/16W
R544	NRSA63J-471N	RESISTOR,M3EG/M5EG 470Ω,1/16W
R545	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R546	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R547	NRSA63J-561N	RESISTOR 560Ω,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R548	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	R549	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R550	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R551	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R553	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R554	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R555	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R556	NRSA63J-821N	RESISTOR	820Ω,1/16W
	R557	NRSA63J-561N	RESISTOR	560Ω,1/16W
	R558	NRSA63J-561N	RESISTOR	560Ω,1/16W
	R559	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R561	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R563	NRSA63J-821N	RESISTOR	820Ω,1/16W
	R564	NRSA63J-391N	RESISTOR	390Ω,1/16W
	R565	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R566	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R568	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R569	NRSA63J-221N	RESISTOR	220Ω,1/16W
	R570	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	R572	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R573	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R574	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R575	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	R576	NRSA63J-561N	RESISTOR	560Ω,1/16W
	R577	NRSA63J-561N	RESISTOR	560Ω,1/16W
	R578	NRSA63J-391N	RESISTOR	390Ω,1/16W
	R580	NRSA63J-912N	RESISTOR	9.1KΩ,1/16W
	R581	NRSA63J-103N	RESISTOR,M3EK/M5EK	10KΩ,1/16W
	R588	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R589	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R590	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R591	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R592	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R593	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R594	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R595	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R596	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R598	NRSA63J-103N	RESISTOR,M3EK/M5EK	10KΩ,1/16W
	R600	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R601	NRSA63J-561N	RESISTOR	560Ω,1/16W
	R602	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R603	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	R604	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R607	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R608	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R609	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R610	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R611	QRSA08J-151YN	RESISTOR	150Ω,1/10W
	R612	QRSA08J-151YN	RESISTOR	150Ω,1/10W
	R613	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R614	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R616	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R619	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R620	NRSA63J-0R0N	RESISTOR	0Ω,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R651	NVP1308-223N	V RESISTOR,WHITE CLIP	22KΩ
	R652	NVP1308-223N	V RESISTOR,CARRIER	22KΩ
	R653	NVP1308-223N	V RESISTOR,DEVIATION	22KΩ
	R654	NVP1308-473N	V RESISTOR,EE Y LEVEL	47KΩ
	R655	NVP1308-104N	V RESISTOR,PB Y LEVEL	100KΩ
	R656	NVP1308-152N	V RESISTOR,YNR INPUT LEVEL	1.5KΩ
	R657	NVP1308-222N	V RESISTOR,REC FM LEVEL	2.2KΩ
	R658	NVP1308-222N	V RESISTOR,VIDEO EQ	2.2KΩ
	R659	NVP1308-102N	V RESISTOR,REC COLOR LEVEL	1KΩ
	R661	NVP1308-223N	V RESISTOR,VCO	22KΩ
	R702	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	C2	NEE21CM-475R	TANTAL CAPACITOR	4.7μF,16V
	C3	NEE21CM-475R	TANTAL CAPACITOR	4.7μF,16V
	C5	NEE21CM-475R	TANTAL CAPACITOR	4.7μF,16V
	C6	NEE21DM-106R	TANTAL CAPACITOR	10μF,20V
	C7	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C8	QEF81DM-685	TANTAL CAPACITOR	6.8μF,20V
	C9	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C10	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C11	QCY81EK-104	CAPACITOR	0.1μF,25V
	C12	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C13	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C14	QCSA1HJ-271	CAPACITOR	270pF,50V
	C15	QCY81EK-104	CAPACITOR	0.1μF,25V
	C16	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C17	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C18	QEF81DM-685	TANTAL CAPACITOR	6.8μF,20V
	C19	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C20	NEE21CM-226R	TANTAL CAPACITOR	22μF,16V
	C51	QCTA1CH-5R0	CAPACITOR	5pF,16V
	C52	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C53	QCTA1CH-181	CAPACITOR	180pF,16V
	C54	QCTA1CH-181	CAPACITOR	180pF,16V
	C55	QCTA1CH-271	CAPACITOR	270pF,16V
	C56	QCTA1CH-681	CAPACITOR	680pF,16V
	C101	NEH31CM-476N	E CAPACITOR	47μF,16V
	C102	QCFA1CZ-105	CAPACITOR	1μF,16V
	C103	NEH31CM-106N	E CAPACITOR	10μF,16V
	C104	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C107	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C108	NEH31CM-106N	E CAPACITOR	10μF,16V
	C109	QCTA1CH-101	CAPACITOR	100pF,16V
	C110	YU40688-476N	E CAPACITOR	47μF,5.5V
	C111	NEH31HM-105N	E CAPACITOR	1μF,50V
	C112	QCFA1CZ-105	CAPACITOR	1μF,16V
	C113	NCT06CH-101A	CAPACITOR	100pF,50V
	C114	NEH31CM-106N	E CAPACITOR	10μF,16V
	C115	NCB31HK-332A	CAPACITOR	0.0033μF,50V
	C116	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C117	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C118	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C119	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C120	QCYA1EK-104	CAPACITOR	0.1μF,25V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C121	NCB31CK-333A	CAPACITOR	0.033μF,16V
C122	NCB31CK-333A	CAPACITOR	0.033μF,16V
C201	QCF81CZ-225	CAPACITOR	2.2μF,16V
C202	QCF81CZ-225	CAPACITOR	2.2μF,16V
C203	QCF81CZ-225	CAPACITOR	2.2μF,16V
C207	NCR21CK-473A	CAPACITOR	0.047μF,16V
C208	NEH31HM-225N	E CAPACITOR	2.2μF,50V
C209	NCB31HK-681A	CAPACITOR	680pF,50V
C210	NCB31HK-332A	CAPACITOR	0.0033μF,50V
C211	NEH31HM-474N	E CAPACITOR	0.47μF,50V
C212	NCB31HK-331A	CAPACITOR	330pF,50V
C213	QCYA1EK-104	CAPACITOR	0.1μF,25V
C214	NEH31CM-106N	E CAPACITOR	10μF,16V
C215	NCB31EK-103A	CAPACITOR	0.01μF,25V
C216	QCYA1EK-104	CAPACITOR	0.1μF,25V
C217	QCYA1HK-103	CAPACITOR	0.01μF,50V
C251	QCF81CZ-105	CAPACITOR	1μF,16V
C252	QCF81CZ-105	CAPACITOR	1μF,16V
C253	QCF81CZ-105	CAPACITOR	1μF,16V
C254	QCFA1CZ-105	CAPACITOR	1μF,16V
C255	NCT06CH-101A	CAPACITOR	100pF,50V
C256	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C257	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C258	QCYA1EK-473	CAPACITOR	0.047μF,25V
C259	NCB31EK-223A	CAPACITOR	0.022μF,25V
C260	NCB31EK-223A	CAPACITOR	0.022μF,25V
C261	NCB31EK-223A	CAPACITOR	0.022μF,25V
C301	YU40688-336N	E CAPACITOR	33μF,10V
C302	YU40688-336N	E CAPACITOR	33μF,10V
C303	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C304	QCF81CZ-105	CAPACITOR	1μF,16V
C305	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C307	NCT06CH-4R0A	CAPACITOR	4pF,50V
C308	NCT07CH-220A	CAPACITOR	22pF,50V
C309	NCT07CH-270A	CAPACITOR	27pF,50V
C310	NCT07CH-270A	CAPACITOR	27pF,50V
C311	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C312	NCB31HK-682A	CAPACITOR	0.0068μF,50V
C313	NCB31EK-103A	CAPACITOR	0.01μF,25V
C314	NCB31EK-103A	CAPACITOR,M5EG/EK	0.01μF,25V
C315	NCB31EK-103A	CAPACITOR	0.01μF,25V
C316	NCB31EK-103A	CAPACITOR	0.01μF,25V
C317	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C318	QCYA1EK-104	CAPACITOR,M5EG/EK	0.1μF,25V
C319	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C320	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C321	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C322	NCB31EK-103A	CAPACITOR	0.01μF,25V
C323	NCT06CH-300A	CAPACITOR	30pF,50V
C324	YU41582-200X	TRIMMER CAPACITOR,FOCUS ZONE POSITION	20pF
C325	NCT07CH-100A	CAPACITOR	10pF,50V
C326	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V
C327	NCB31EK-103A	CAPACITOR	0.01μF,25V
C401	YU40688-336N	E CAPACITOR	33μF,10V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C402	NCR31CK-183A	CAPACITOR	0.018μF,16V
C403	QCF81CZ-105	CAPACITOR	1μF,16V
C404	NCS31HJ-330A	CAPACITOR	33pF,50V
C405	NEH31CM-106N	E CAPACITOR	10μF,16V
C406	QCYA1EK-393	CAPACITOR	0.039μF,25V
C407	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C408	NCB31HK-272A	CAPACITOR	0.0027μF,50V
C409	NCB31HK-681A	CAPACITOR	680pF,50V
C410	NEH30JM-226N	E CAPACITOR	22μF,6.3V
C411	NCB31EK-223A	CAPACITOR	0.022μF,25V
C412	NCS31HJ-331A	CAPACITOR	330pF,50V
C413	YU40688-336N	E CAPACITOR	33μF,10V
C414	QCF81CZ-105	CAPACITOR	1μF,16V
C415	YU40688-336N	E CAPACITOR	33μF,10V
C416	NCB31HK-392A	CAPACITOR	0.0039μF,50V
C417	NCS31HJ-471A	CAPACITOR	470pF,50V
C418	QFZ9011-333	MM CAPACITOR	0.033μF,63V
C419	NCB31HK-471A	CAPACITOR	470pF,50V
C420	NCS31HJ-101A	CAPACITOR	100pF,50V
C421	NCS31HJ-101A	CAPACITOR	100pF,50V
C422	NCS31HJ-101A	CAPACITOR	100pF,50V
C423	NCS31HJ-101A	CAPACITOR	100pF,50V
C425	NEH31HM-105N	E CAPACITOR,M3EG/EK	1μF,50V
C425	NEN11HM-105N	E CAPACITOR,M5EG/EK	1μF,50V
C426	YU40688-336N	E CAPACITOR	33μF,10V
C427	NCB31HK-102A	CAPACITOR	0.001μF,50V
C428	NCS31HJ-101A	CAPACITOR	100pF,50V
C429	NCB31HK-821A	CAPACITOR	820pF,50V
C430	QCF81CZ-105	CAPACITOR	1μF,16V
C431	NEE21DM-684R	TANTAL CAPACITOR	0.68μF,20V
C432	QCYA1EK-104	CAPACITOR	0.1μF,25V
C434	NCB31HK-821A	CAPACITOR	820pF,50V
C435	QCYA1EK-104	CAPACITOR	0.1μF,25V
C436	NEH30JM-226N	E CAPACITOR	22μF,6.3V
C437	NEH30JM-226N	E CAPACITOR	22μF,6.3V
C438	NEH31CM-106N	E CAPACITOR	10μF,16V
C439	NEH31CM-106N	E CAPACITOR	10μF,16V
C440	NEH31HM-225N	E CAPACITOR	2.2μF,50V
C441	QCF81CZ-105	CAPACITOR	1μF,16V
C442	QCF81CZ-105	CAPACITOR	1μF,16V
C443	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C444	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C450	NEH30JM-226N	E CAPACITOR,M5EG/EK	22μF,6.3V
C451	NEH31CM-106N	E CAPACITOR,M5EG/EK	10μF,16V
C458	NEE21EM-474R	TANTAL CAPACITOR,M5EG/EK	0.47μF,25V
C501	NCB31EK-103A	CAPACITOR	0.01μF,25V
C502	NCT06CH-820A	CAPACITOR	82pF,50V
C503	QCTA1CH-471	CAPACITOR	470pF,16V
C504	NCS31HJ-470A	CAPACITOR	47pF,50V
C505	NCB31EK-103A	CAPACITOR	0.01μF,25V
C506	NCB31EK-103A	CAPACITOR	0.01μF,25V
C507	NCB31EK-103A	CAPACITOR	0.01μF,25V
C508	NEH31HM-225N	E CAPACITOR	2.2μF,50V
C509	NCB31EK-223A	CAPACITOR	0.022μF,25V
C510	NEH31EM-475N	E CAPACITOR	4.7μF,25V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C511	NEH30GM-476N	E CAPACITOR	47μF,4.0V
	C512	NEH31CM-106N	E CAPACITOR	10μF,16V
	C513	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C514	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C515	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C516	YU40688-476N	E CAPACITOR	47μF,5.5V
	C517	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C518	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C519	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C520	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C522	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C523	YU40688-476N	E CAPACITOR	47μF,5.5V
	C525	NCS31HJ-390A	CAPACITOR	39pF,50V
	C526	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C527	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C528	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C529	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C530	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C531	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C532	NCS31HJ-200A	CAPACITOR	20pF,50V
	C533	NEH30GM-476N	E CAPACITOR	47μF,4.0V
	C534	NEH31HM-105N	E CAPACITOR	1μF,50V
	C536	NEH31CM-106N	E CAPACITOR	10μF,16V
	C537	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C539	NEH31HM-105N	E CAPACITOR	1μF,50V
	C540	NEH31CM-106N	E CAPACITOR	10μF,16V
	C541	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C542	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	C543	NEH31CM-106N	E CAPACITOR	10μF,16V
	C544	NEH31CM-106N	E CAPACITOR	10μF,16V
	C545	NEH31HM-474N	E CAPACITOR	0.47μF,50V
	C546	NEH31HM-225N	E CAPACITOR	2.2μF,50V
	C547	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C549	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C550	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C551	NCS31HJ-560A	CAPACITOR	56pF,50V
	C552	YU40688-476N	E CAPACITOR	47μF,5.5V
	C553	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C555	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C556	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C557	NEH31CM-106N	E CAPACITOR	10μF,16V
	C558	QCTA1CH-821	CAPACITOR	820pF,16V
	C559	NCS31HJ-151A	CAPACITOR	150pF,50V
	C560	NCS31HJ-100A	CAPACITOR	10pF,50V
	C561	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	C562	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C563	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C564	NCS31HJ-820A	CAPACITOR	82pF,50V
	C565	NCS31HJ-220A	CAPACITOR	22pF,50V
	C566	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C567	NCS31HJ-330A	CAPACITOR	33pF,50V
	C568	NCS31HJ-221A	CAPACITOR	220pF,50V
	C569	NCS31HJ-121A	CAPACITOR	120pF,50V
	C571	NCS31HJ-121A	CAPACITOR	120pF,50V
	C572	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C573	NCS31HJ-560A	CAPACITOR	56pF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C574	NCS31HJ-181A	CAPACITOR	180pF,50V
	C575	NCT06CH-470A	CAPACITOR	47pF,50V
	C578	NCS31HJ-270A	CAPACITOR	27pF,50V
	C579	NCS31HJ-3R0A	CAPACITOR	3pF,50V
	C580	NCS31HJ-470A	CAPACITOR	47pF,50V
	C581	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C582	NCS31HJ-180A	CAPACITOR	18pF,50V
	C583	NCS31HJ-180A	CAPACITOR,M3EG/M5EG	18pF,50V
	C583	NCS31HJ-220A	CAPACITOR,M3EK/M5EK	22pF,50V
	C587	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C588	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	C589	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C590	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C591	QCYA1EK-153	CAPACITOR	0.015μF,25V
	C592	QCYA1HK-333	CAPACITOR	0.033μF,50V
	C593	QCYA1HK-333	CAPACITOR	0.033μF,50V
	C599	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	C600	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C601	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C602	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C603	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C604	YU40688-476N	E CAPACITOR	47μF,5.5V
	C605	NEH31HM-474N	E CAPACITOR	0.47μF,50V
	C606	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C607	NEH31HM-105N	E CAPACITOR	1μF,50V
	C608	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	C609	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C610	NEH31EM-475N	E CAPACITOR	4.7μF,25V
	C611	QER40GM-477	E CAPACITOR	470μF,4.0V
	C612	NCS31HJ-100A	CAPACITOR	10pF,50V
	C613	NEH30GM-476N	E CAPACITOR	47μF,4.0V
	C614	NCS31HJ-561A	CAPACITOR	560pF,50V
	C615	NCS31HJ-220A	CAPACITOR	22pF,50V
	C616	NCS31HJ-220A	CAPACITOR	22pF,50V
	C617	NCS31HJ-221A	CAPACITOR	220pF,50V
	C619	NCS31HJ-101A	CAPACITOR	100pF,50V
	L1	PELN0599	COIL	
	L2	PELN0325-150K	COIL	
	L3	PELN0325-150K	COIL	
	L51	YU41135-470	COIL	47μH
	L52	YU41134-1R2M	COIL	1.2μH
⚠	L53	PELN0744	OSC TRANSFORMER	
	L301	PU58201-330J	COIL	33μH
⚠	L401	YU41716	OSC COIL	3.8mH
	L402	YU41135-101K	COIL	100μH
	L403	PU54710-562	COIL	5.6mH
	L404	YU41135-101K	COIL	100μH
	L501	YU41134-121J	COIL	120μH
	L502	YU41135-470	COIL	47μH
	L503	YU41134-101J	COIL	100μH
	L504	YU41134-5R6K	COIL	5.6μH
	L505	YU41134-150J	COIL	15μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L506	YU41134-390J	COIL	39μH
	L507	YU41135-470	COIL	47μH
	L508	YU41135-470	COIL	47μH
	L509	YU41134-560J	COIL	56μH
	L510	YU41134-121J	COIL	120μH
	L511	YU41135-470	COIL	47μH
		or YU40740-470K	COIL	47μH
	L512	YU41134-121J	COIL	120μH
	L513	YU41134-390J	COIL	39μH
	L514	YU41134-220J	COIL	22μH
	L515	YU41134-271J	COIL	270μH
	L516	YU41134-680J	COIL	68μH
	L519	YU41134-680J	COIL	68μH
	L520	YU41134-820J	COIL	82μH
	L521	YU41134-331J	COIL	330μH
	L522	YU41134-220J	COIL	22μH
	L523	YU41134-560J	COIL	56μH
	L524	YU41134-180J	COIL	18μH
	L525	YU41134-220J	COIL	22μH
	L527	YU41135-470	COIL	47μH
		or YU40740-470K	COIL	47μH
	L528	YU40941-682	COIL	6.8mH
	L529	PU57620-102K	COIL	1mH
	L530	YU41134-331J	COIL	330μH
	L534	YU41135-470	COIL	47μH
		or YU40740-470K	COIL	47μH
	L535	YU41135-470	COIL	47μH
		or YU40740-470K	COIL	47μH
	L536	YU41135-470	COIL	47μH
		or YU40740-470K	COIL	47μH
	L538	PU59152-121J	COIL	120μH
	L539	YU41134-150J	COIL	15μH
	DL501	PEVB0456	COMB FILTER	
⚠	X301	YU40141	CRYSTAL RESONATOR	
⚠	X302	PEVB0443	CRYSTAL RESONATOR	
⚠	X501	PEVB0408	CRYSTAL RESONATOR	
	S301	PESW0605	PUSH SWITCH	
	DD1	PEAS2111	DC-DC CONVERTER	
	T1	PELN0600	SW TRANS	
	T2	PELN0600	SW TRANS	
	PS301	TLN119	LE DIODE	
	J1	YQ31203	JACK BOX,M3EG/EK	
	J1	YQ31203-2	JACK BOX,M5EG/EK	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	SPC1	YQM30029-86	SPACER
	TP1	YU41389	TEST PIN,GND
	TP2	YU41389	TEST PIN,REG 5V
	TP3	YU41389	TEST PIN,REG 8V
	TP101	YU41389	TEST PIN,CTL PULSE
	TP202	YU41389	TEST PIN,CAPSTAN FG
	TP206	YU41389	TEST PIN,DRUM FG
	TP207	YU41389	TEST PIN,DRUM PU
	TP401	YU41389	TEST PIN,BIAS(+)
	TP402	YU41389	TEST PIN,BIAS(−)
	TP403	YU41389	TEST PIN,AUDIO OUT
	TP404	YU41389	TEST PIN,GND
	TP501	YU41389	TEST PIN,REC FM
	TP502	YU41389	TEST PIN,DRUM FF
	TP503	YU41389	TEST PIN,EMPHASIS
	TP504	YU41389	TEST PIN,YNR IN
	TP505	YU41389	TEST PIN,B/W
	TP506	YU41389	TEST PIN,REC COLOR 1
	TP507	YU41389	TEST PIN,PB COLOR
	TP509	YU41389	TEST PIN,GND
	TP510	YU41389	TEST PIN,VIDEO OUT
	TP511	YU41389	TEST PIN,COLOR KILLER
	TP512	YU41389	TEST PIN,REC COLOR 2
	CN1	YU41355-11	CAP HOUSING
	CN2	YU41356-7	CAP HOUSING,(BOARD TO BOARD)
	CN3	YU41355-12	CAP HOUSING
	CN4	YU41356-5	CAP HOUSING
	CN5	PEMC0855-018	CAP HOUSING
		or PEMC0884-018	CAP HOUSING
		or PEMC0935-018	CAP HOUSING
	CN6	PEMC0880-018	CAP HOUISNG
	CN7	PEMC0813-24	CAP HOUSING,(BOARD TO BOARD)
	CN8	PEMC0813-18	CAP HOUSING,(BOARD TO BOARD)
	CN9	PEMC0822-10	CAP HOUSING,(BOARD TO BOARD)
	CN10	PEMC0859-013	CAP HOUSING
		or PEMC0885-013	CAP HOUISNG
		or PEMC0934-013	CAP HOUSING
	CN11	YU41356-2	CAP HOUISNG
	CN12	YU41356-2	CAP HOUSING
	CN13	YU41356-3	CAP HOUISNG
	CN14	YU41356-4	CAP HOUSING,M5EG/EK
	CN15	YU41356-2	CAP HOUISNG
	CN16	YU41356-2	CAP HOUISNG
⚠	CP1	ICP-N20	CIRCUIT PROTECTOR
⚠	CP2	ICP-N38	CIRCUIT PROTECTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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PRE REC BOARD ASSEMBLY <03>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	BW8218	IC,PRE/REC AMP

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SENSOR BOARD ASSEMBLY <04>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YQ31063A-7	SENSOR BOARD ASSY
SPC1	YQ41872	SPACER

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TRIGGER BOARD ASSEMBLY <05>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB20360B	TRIGGER BOARD ASSY
SW1	YU41685	TACT SWITCH
CN1	ML-Y00643A	TRIG BOARD WIRE

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TALLY BOARD ASSEMBLY(M5EG/EK ONLY) <07>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB30092A	TALLY BOARD ASSY	
D1	SLH-34VC3F	LE DIODE	
D2	PAS-B0650	DIODE,IR DETECT UNIT	
R1	QRD167J-470	RESISTOR	47Ω,1/6W
C1	QER40JM-476	E CAPACITOR	47μF,6.3V
SPC1	YQM30029-119	SPACER	
CN1	ML-Y00651A	TALLY BOARD WIRE	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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END SESOR BRACKET ASSEMBLY <08>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YQ42431A-1	END SENSOR BRACKET ASSY
BKT1	YQ31055-1-1	END SENSOR BKACKET

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CCD BOARD ASSEMBLY <11>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB20605E-02	CCD BOARD ASSY
IC1	JCY0020	IC
	or MN5189	IC
IC2	IR3P97	IC
	or IR3P97Y	IC
IC3	TK11250M	IC
IC4	MSM7417MS	IC
IC5	MN3110SA	IC
	or UPD16506GR	IC
IC6	MM1165GM	IC
Q1	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q2	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q3	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q4	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q5	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q6	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q7	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q8	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q9	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q11	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q12	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q13	2SD1819(QR)	TRANSISTOR
Q14	2SC4181	TRANSISTOR
Q15	2SD1819(QR)	TRANSISTOR
Q16	DTC124EK	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D1	MA141WK	DIODE	
	D2	MA141WK	DIODE	
	D3	MA141WK	DIODE	
	D4	MA141WK	DIODE	
	D5	MA143	DIODE	
	R1	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R2	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R3	NRSA63J-560N	RESISTOR	56Ω,1/16W
	R4	NRSA63J-560N	RESISTOR	56Ω,1/16W
	R5	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R7	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R9	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R10	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R12	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R13	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R15	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R16	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R17	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R18	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R19	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R20	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R21	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R22	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R23	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R24	NRSA63J-202N	RESISTOR	2KΩ,1/16W
	R25	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R29	NRVA63D-153N	RESISTOR	15KΩ,1/16W
	R30	NRVA63D-273N	RESISTOR	27KΩ,1/16W
	R31	NRVA63D-153N	RESISTOR	15KΩ,1/16W
	R32	NRVA63D-273N	RESISTOR	27KΩ,1/16W
	R34	NRSA63J-334N	RESISTOR	330KΩ,1/16W
	R35	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R36	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R37	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R38	NRSA63J-564N	RESISTOR	560KΩ,1/16W
	R39	NVP1308-103N	V RESISTOR,R/B SEPARATION	10KΩ
	R40	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R41	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R42	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R43	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R44	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R45	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R46	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R47	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
	R48	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R49	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R52	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R53	NRSA63J-393N	RESISTOR	39KΩ,1/16W
	R54	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R55	NVP1308-103N	V RESISTOR,1H DELAYED SIG LEVEL	10KΩ
	R56	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R57	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R58	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R59	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R60	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R61	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R62	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R63	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R64	NVP1308-104N	V RESISTOR,BLOOMING	100KΩ
	R65	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R66	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R67	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R69	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	R70	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R71	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R72	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R73	NRSA63J-393N	RESISTOR	39KΩ,1/16W
	R74	NRSA63J-203N	RESISTOR	20KΩ,1/16W
	R77	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R78	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R81	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R82	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
⚠	R85	PERE0545-630Z	FUSE RESISTOR	
	C2	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C3	NCT07CH-100A	CAPACITOR	10pF,50V
	C4	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C5	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C6	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C8	NCT07CH-221A	CAPACITOR	220pF,50V
	C9	NCT07CH-560A	CAPACITOR	56pF,50V
	C10	NEA20JM-107N	E CAPACITOR	100μF,6.3V
		or NEH30JM-107N	E CAPACITOR	100μF,6.3V
	C11	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C12	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C13	NCT07CH-100A	CAPACITOR	10pF,50V
	C14	NCT07CH-5R0A	CAPACITOR	5pF,50V
	C16	YU41582-200	TRIMMER CAPACITOR,OSC	20pF
		or PECA0807-200	TRIMMER CAPACITOR	
		or PECA0795-200	TRIMMER CAPACITOR	
	C17	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C18	NEA20JM-226N	E CAPACITOR	22μF,6.3V
		or NEH30JM-226N	E CAPACITOR	22μF,6.3V
	C19	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C20	NEA20JM-107N	E CAPACITOR	100μF,6.3V
		or NEH30JM-107N	E CAPACITOR	100μF,6.3V
	C21	NCT07CH-390A	CAPACITOR	39pF,50V
	C22	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C23	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C24	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C25	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C26	NEA21HM-105N	E CAPACITOR	1μF,50V
	C27	NEN10JM-106N	E CAPACITOR	10μF,6.3V
	C28	NEA21CM-106N	E CAPACITOR	10μF,16V
		or NEH31CM-106N	E CAPACITOR	10μF,16V
	C29	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C30	NEA21HM-225N	E CAPACITOR	2.2μF,50V
	C31	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C32	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C33	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C34	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C35	NEA20JM-107N	E CAPACITOR	100μF,6.3V
	or NEH30JM-107N	E CAPACITOR	100μF,6.3V
C38	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C39	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V
C40	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C41	NEA20JM-226N	E CAPACITOR	22μF,6.3V
	or NEH30JM-226N	E CAPACITOR	22μF,6.3V
C42	NEA21HM-105N	E CAPACITOR	1μF,50V
C43	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C44	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C45	NEE21VM-224R	TANTAL CAPACITOR	0.22μF,35V
C46	QCYA1EK-104	CAPACITOR	0.1μF,25V
C47	QEF81DM-106	E CAPACITOR	10μF,20V
C49	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C50	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C51	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C52	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C53	QCYA1EK-104	CAPACITOR	0.1μF,25V
C54	NEA21CM-106N	E CAPACITOR	10μF,16V
	or NEH11CM-106N	E CAPACITOR	10μF,16V
C55	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C56	NEA21CM-106N	E CAPACITOR	10μF,16V
	or NEH31CM-106N	E CAPACITOR	10μF,16V
C57	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C58	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C59	NEA20JM-107N	E CAPACITOR	100μF,6.3V
	or NEH30JM-107N	E CAPACITOR	100μF,6.3V
C60	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C61	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C62	NEA21CM-106N	E CAPACITOR	10μF,16V
	or NEH31CM-106N	E CAPACITOR	10μF,16V
C63	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C64	QEF81DM-106	E CAPACITOR	10μF,20V
C65	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C67	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C70	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C71	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C72	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V
C73	QCYA1EK-104	CAPACITOR	0.1μF,25V
C75	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
L1	YU40740-220K	COIL	22μH
L2	YU40740-220K	COIL	22μH
L3	YU40740-220K	COIL	22μH
L4	YU40740-220K	COIL	22μH
L7	YU40740-220K	COIL	22μH
L8	YU40740-220K	COIL	22μH
L11	YU40740-220K	COIL	22μH
LPF1	PELN0747	LOW PASS FILTER	
	or PELN0761	LOW PASS FILTER	
LPF2	PELN0772	LOW PASS FILTER	
	or PELN0799	LOW PASS FILTER	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ X1	PEVB0409	CRYSTAL RESONATOR
DD1	PEAS2098	DC-DC CONVERTER
SLD1	YU41966	SHIELD
CN11	PEMC0822-16	CAP HOUSING,(BOARD TO BOARD)
CN12	PEMC0822-18	CAP HOUSING,(BOARD TO BOARD)
CN14	YU41616	CCD SOCKET

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PROCESS BOARD ASSEMBLY <12>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB20606E-03	PROCESS BOARD ASSY
IC1	UPD78234GC-208	IC
IC2	SC402090FB	IC
IC3	TB6504F	IC
IC4	JCY0007-1	IC
IC5	MM1036XF	IC
IC6	S-2917IF10	IC
IC7	TC7S08F	IC
IC8	UPC358G2	IC
IC9	TC4S584F	IC
IC10	MN12821(QR)	IC
IC11	S-81250HG	IC
IC12	MM1165GM	IC
IC13	MM1165GM	IC
IC16	TC7S32F	IC
IC201	HA118168MA	IC
	or HA118188MA	IC
IC202	TL8823F	IC
IC203	EHDGA1451	IC
IC204	TC7S04F	IC
IC205	TK11250M	IC
IC206	TK11250M	IC
IC207	TC7S32F	IC
Q1	DTC144EU	TRANSISTOR
Q3	DTC114EU	TRANSISTOR
Q5	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q6	2SA1532(BC)	TRANSISTOR
	or 2SA1576(QR)	TRANSISTOR
Q7	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q8	IMT1	TRANSISTOR
Q201	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
Q202	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q203	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q204	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q205	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q206	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q207	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q208	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q209	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q210	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q211	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q212	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q213	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q214	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q215	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q216	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q217	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q218	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q219	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q220	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q222	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q223	2SC3936(BC)	TRANSISTOR
Q224	2SC3936(BC)	TRANSISTOR
Q225	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q226	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q227	2SC4081(QR)	TRANSISTOR
	or 2SC3936(BC)	TRANSISTOR
Q228	2SA1576(QR)	TRANSISTOR
	or 2SA1532(BC)	TRANSISTOR
Q229	2SC3936(BC)	TRANSISTOR
Q230	2SC3936(BC)	TRANSISTOR
Q231	2SC3936(BC)	TRANSISTOR
Q232	2SC3936(BC)	TRANSISTOR
D1	MA141WK	DIODE
D4	MA141WK	DIODE
D5	MA30WA	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D201	MA141WA	DIODE	
D203	MA141WK	DIODE	
R1	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R2	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R3	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R4	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R6	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R7	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R8	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R9	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R10	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R11	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R12	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R13	NRSA63J-101N	RESISTOR	100Ω,1/16W
R14	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R15	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R16	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R18	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R19	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R21	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R25	NRSA63J-221N	RESISTOR	220Ω,1/16W
R26	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R28	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R29	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R31	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R32	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R33	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R34	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R35	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R36	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R37	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R38	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R39	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R40	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R41	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R42	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R43	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R44	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R45	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R46	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R47	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R48	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R49	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R50	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R51	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R52	QRSA08J-3R0YN	RESISTOR	3Ω,1/10W
R53	QRSA08J-3R0YN	RESISTOR	3Ω,1/10W
R54	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R55	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
R56	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R57	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R58	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R59	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R61	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R62	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R63	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R64	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R65	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R66	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R67	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R68	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R69	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R70	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R71	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R72	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R73	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R74	NVP1308-222N	V RESISTOR,EE LEVEL	2.2KΩ
	R75	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R76	NRSA63J-184N	RESISTOR	180KΩ,1/16W
	R79	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R80	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R81	NRSA63J-820N	RESISTOR	82Ω,1/16W
	R82	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R87	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R89	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R90	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R91	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R92	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R93	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R94	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R95	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R96	NVP1308-222N	V RESISTOR,OFF SET	2.2KΩ
	R97	NVP1308-334N	V RESISTOR,GAIN	330KΩ
	R98	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R99	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R100	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R101	NRSA63J-563N	RESISTOR	56KΩ,1/16W
	R102	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R103	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R105	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R107	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R108	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R109	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R110	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R111	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R112	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R113	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R114	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R115	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R116	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R117	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R118	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R119	NRSA63J-821N	RESISTOR	820Ω,1/16W
	R120	NRSA63J-181N	RESISTOR	180Ω,1/16W
	R121	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R122	NRSA63J-561N	RESISTOR	560Ω,1/16W
	R123	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R124	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R125	NRSA63J-0R0N	RESISTOR	0Ω,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R126	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R127	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R132	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R133	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R134	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R135	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R136	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R137	NRSA63J-334N	RESISTOR	330KΩ,1/16W
	R201	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R202	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R203	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R204	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R205	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R206	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R207	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R208	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R209	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R210	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R211	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R212	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R213	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R214	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R215	NRSA63J-823N	RESISTOR	82KΩ,1/16W
	R216	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R217	NVP1308-472N	V RESISTOR,B-Y LEVEL	4.7KΩ
	R218	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R219	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R220	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R221	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R222	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R223	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R224	NVP1308-472N	V RESISTOR,Y LEVEL	4.7KΩ
	R225	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	R226	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R227	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R228	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R229	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R230	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R231	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R232	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R233	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R234	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R235	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R236	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R237	NVP1308-103N	V RESISTOR,R ENCODER BAL	10KΩ
	R238	NVP1308-103N	V RESISTOR,B ENCODER BAL	10KΩ
	R239	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R240	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R241	NRVA63D-133N	RESISTOR	13KΩ,1/16W
	R242	NRVA63D-223N	RESISTOR	22KΩ,1/16W
	R243	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R244	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R245	NRSA63J-362N	RESISTOR	3.6KΩ,1/16W
	R246	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	R247	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R248	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R249	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R250	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R251	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R253	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R254	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R255	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R256	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R257	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R258	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R259	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R260	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R261	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R262	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R263	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R264	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R265	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R266	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R267	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R268	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R269	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R270	NRVA63D-912N	RESISTOR	9.1KΩ,1/16W
R271	NRSA63J-331N	RESISTOR	330Ω,1/16W
R272	NRVA63D-203N	RESISTOR	20KΩ,1/16W
R273	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R274	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R275	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R276	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R277	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R278	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R279	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R280	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R281	NRSA63J-821N	RESISTOR	820Ω,1/16W
R282	NRVA63D-122N	RESISTOR	1.2KΩ,1/16W
R283	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R284	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R286	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R287	NRSA63J-684N	RESISTOR	680KΩ,1/16W
R288	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R290	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R291	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R294	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R295	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R296	NVP1308-103N	V RESISTOR,COLOR LEVEL	10KΩ
R297	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R298	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R299	NRVA63D-103N	RESISTOR	10KΩ,1/16W
R300	NRVA63D-223N	RESISTOR	22KΩ,1/16W
R301	NRVA63D-752N	RESISTOR	7.5KΩ,1/16W
R302	NVP1308-103N	V RESISTOR,BURST PHASE	10KΩ
R303	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R304	NCT07CH-680A	CAPACITOR	68pF,50V
R305	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R306	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R307	NVP1308-472N	V RESISTOR,BURST LEVEL	4.7KΩ
R308	NVP1308-103N	V RESISTOR,COLOR DET BAL	10KΩ
R309	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R310	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R311	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R312	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R313	NVP1308-103N	V RESISTOR,CNR BALANCE	10KΩ
R314	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R315	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R316	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R317	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R318	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R319	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R320	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R321	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R322	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R323	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R324	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R325	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R326	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R327	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R328	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R329	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R330	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R334	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
C1	NEA20JM-226N	E CAPACITOR	22μF,6.3V
C2	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C3	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V
C4	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C5	NEA20JM-226N	E CAPACITOR	22μF,6.3V
C6	NEA21CM-106N	E CAPACITOR	10μF,16V
C7	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C8	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C9	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C10	NEA20JM-226N	E CAPACITOR	22μF,6.3V
C11	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C12	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C13	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C14	NEA20JM-226N	E CAPACITOR	22μF,6.3V
C15	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C16	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C17	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C18	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C19	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C20	NCT07CH-150A	CAPACITOR	15pF,50V
C21	NCT07CH-150A	CAPACITOR	15pF,50V
C22	NCB31EK-332A	CAPACITOR	0.0033μF,25V
C23	NCB31EK-472A	CAPACITOR	0.0047μF,25V
C24	NCB31EK-472A	CAPACITOR	0.0047μF,25V
C25	NCB31EK-472A	CAPACITOR	0.0047μF,25V
C26	NCB31EK-472A	CAPACITOR	0.0047μF,25V
C27	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C28	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C29	NCB31EK-103A	CAPACITOR	0.01μF,25V
C30	NCB31EK-103A	CAPACITOR	0.01μF,25V
C31	NCB31EK-103A	CAPACITOR	0.01μF,25V
C32	NEA21EM-475N	E CAPACITOR	4.7μF,25V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C33	QCFA1CZ-105	CAPACITOR	1µF,16V
	C34	QCFA1CZ-105	CAPACITOR	1µF,16V
	C35	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C36	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C37	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C38	NCB31EK-223A	CAPACITOR	0.022µF,25V
	C39	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C40	NCB31EK-223A	CAPACITOR	0.022µF,25V
	C41	NCT07CH-101A	CAPACITOR	100pF,50V
	C42	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C43	NEE20GM-475R	TANTAL CAPACITOR	4.7µF,4.0V
	C44	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C45	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C46	NCT07CH-330A	CAPACITOR	33pF,50V
	C47	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C48	NCT07CH-220A	CAPACITOR	22pF,50V
	C49	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C50	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C51	NCT07CH-151A	CAPACITOR	150pF,50V
	C52	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C53	NCT07CH-121A	CAPACITOR	120pF,50V
	C54	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C55	NCB31CK-273A	CAPACITOR	0.027µF,16V
	C56	NCB31CK-273A	CAPACITOR	0.027µF,16V
	C57	NCT07CH-101A	CAPACITOR	100pF,50V
	C58	NCB31CK-273A	CAPACITOR	0.027µF,16V
	C59	NCT07CH-101A	CAPACITOR	100pF,50V
	C60	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C61	NCR31CK-223A	CAPACITOR	0.022µF,16V
	C62	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C63	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C64	NCT07CH-121A	CAPACITOR	120pF,50V
	C65	NCT07CH-330A	CAPACITOR	33pF,50V
	C66	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C68	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C70	QCFA1EZ-104	CAPACITOR	0.1µF,25V
	C71	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C72	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C73	NEE21AM-335R	TANTAL CAPACITOR	3.3µF,10V
	C74	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C201	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C202	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C203	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C204	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C205	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C206	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C207	NCT07CH-121A	CAPACITOR	120pF,50V
	C208	QCFA1CZ-105	CAPACITOR	1µF,16V
	C209	QCFA1CZ-105	CAPACITOR	1µF,16V
	C210	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C211	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C212	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C213	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C214	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C215	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C216	NCR21CK-473A	CAPACITOR	0.047µF,16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C217	NEA20JM-226N	E CAPACITOR	22µF,6.3V
	C218	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C219	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C221	NCT07CH-5R0A	CAPACITOR	5pF,50V
	C222	NCR21CK-473A	CAPACITOR	0.047µF,16V
	C223	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C224	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C225	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C226	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C227	NEA20JM-107N	E CAPACITOR	100µF,6.3V
	C228	NCT07CH-6R0A	CAPACITOR	6pF,50V
	C229	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C230	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C231	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C232	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C233	QCFA1CZ-105	CAPACITOR	1µF,16V
	C234	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C237	NCB31EK-103A	CAPACITOR	0.01µF,25V
	C238	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	C239	QCFA1CZ-105	CAPACITOR	1µF,16V
	C240	NEE20GM-335R	TANTAL CAPACITOR	3.3µF,4.0V
	C241	NCB31EK-102A	CAPACITOR	0.001µF,25V
		or NCB31HK-102A	CAPACITOR	0.001µF,50V
	C242	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C243	NEA20JM-226N	E CAPACITOR	22µF,6.3V
	C244	QCFA1CZ-105	CAPACITOR	1µF,16V
	C245	NEE20GM-335R	TANTAL CAPACITOR	3.3µF,4.0V
	C246	NEE21EM-105R	TANTAL CAPACITOR	1µF,25V
	C247	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C248	NEA20JM-226N	E CAPACITOR	22µF,6.3V
	C249	NCT07CH-560A	CAPACITOR	56pF,50V
	C252	NCT07CH-560A	CAPACITOR	56pF,50V
	C253	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C255	NCT07CH-560A	CAPACITOR	56pF,50V
	C256	NCT07CH-101A	CAPACITOR	100pF,50V
	C257	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C258	NEA20JM-107N	E CAPACITOR	100µF,6.3V
	C259	NEE21AM-335R	TANTAL CAPACITOR	3.3µF,10V
	C260	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C261	NEE21CM-105R	TANTAL CAPACITOR	1µF,16V
	C262	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C263	NEE21CM-105R	TANTAL CAPACITOR	1µF,16V
	C264	NEE21AM-335R	TANTAL CAPACITOR	3.3µF,10V
	C265	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C266	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C267	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	L1	YU41607	INDUCTOR	
		or PELN0706	INDUCTOR	
	L2	YU41607	INDUCTOR	
		or PELN0706	INDUCTOR	
	L3	PELN0704-100K	INDUCTOR	
	L4	PU58201-121J	COIL	120µH
	L5	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	L7	PU58201-330J	COIL	33µH

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L202	YU40740-220K	COIL	22μH
L203	YU40740-220K	COIL	22μH
L204	YU40740-220K	COIL	22μH
LPF201	PELN0596	LOW PASS FILTER	
LPF202	PELN0597	LOW PASS FILTER	
BPF1	YU40700	FILTER	
BPF1	YU40700	FILTER	
BPF1	YU40700	FILTER	
BPF2	YU41033	FILTER	
BPF201	YU41264	FILTER	
DL201	YU41628	DELAY LINE	
DL202	PELN0488	DELAY LINE	
⚠ X1	PEVB0454	RESONATOR	
⚠ X2	PEVB0447	CRYSTAL RESONATOR	
TP1	YU41389	TEST PIN,V.EDGE	
TP2	YU41389	TEST PIN,HALL AMP OUT	
TP3	YU41389	TEST PIN,CNR	
TP4	YU41389	TEST PIN,YH	
TP5	YU41389	TEST PIN,BLUE	
TP6	YU41389	TEST PIN,B-Y	
TP7	YU41389	TEST PIN,R-Y	
CN21	YU41849-16	CAP HOUSING,(BOARD TO BOARD)	
CN22	YU41849-18	CAP HOUSING,(BOARD TO BOARD)	
CN23	PEMC0812-24	CAP HOUSING,(BOARD TO BOARD)	
CN24	YU41356-7	CAP HOUSING,(BOARD TO BOARD)	
CN25	YU41356-4	CAP HOUSING	
CN26	YU41356-3	CAP HOUSING	
CN27	YU41356-2	CAP HOUSING	
CN28	YU41356-4	CAP HOUSING	
CN29	PEMC0880-008	CAP HOUSING	

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OPERATION(CAMERA) BOARD ASSEMBLY <13>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YQ31312	OPERATION(CAMERA)BOARD ASSY,M3EG/EK
PWBA	YQ31312-2	OPERATION(CAMERA)BOARD ASSY,M5EG/EK

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REAR BOARD ASSEMBLY <14>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20607A-03	REAR BOARD ASSY	
Q1	2SB1202(ST)	TRANSISTOR	
Q2	DTC124EK	TRANSISTOR	
Q3	2SB1202(ST)	TRANSISTOR	
R2	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R3	QRS188J-681YN	RESISTOR	680Ω,1/8W
R4	QRS188J-0R0YN	RESISTOR	0Ω,1/8W
R5	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
C1	NEA20JM-226N	E CAPACITOR	22μF,6.3V
	or NEH30JM-226N	E CAPACITOR	22μF,6.3V
TML1	YQ42035	TERMINAL1(LB)	
TML2	YQ42036	TERMINAL2(CLOCK)	
TML3	YQ31096-1-2	BATTERY TERMINAL UNIT	
CN41	YU41849-10	CAP HOUSING,(BOARD TO BOARD)	
⚠ CP1	ICP-F20	CIRCUIT PROTECTOR	

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DRUM BOARD <40>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWB	YDM3064	UPPER DRUM BOARD,M3EK/M5EK
PWB	YDM3064-3	UPPER DRUM BOARD,M3EG/M5EG

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E.VF BOARD ASSEMBLY <50>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ PWBA	YQ31304-601	E.VF BOARD ASSY
⚠ IC1	BA7149F	IC
⚠	or BA7147F	IC
⚠ IC2	TA78L05F	IC
⚠	or HA178L05UA01	IC
⚠	or NJM78L05UD	IC

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ IC3	TA75S01F	IC	
⚠	or NJM2107F	IC	
PT1	IMT1	TRANSISTOR	
	or XN4401	TRANSISTOR	
PT2	IMZ1	TRANSISTOR	
	or XN4601	TRANSISTOR	
Q1	2SC4132	TRANSISTOR	
⚠ Q2	2SC4211	TRANSISTOR	
⚠	or 2SC4081	TRANSISTOR	
⚠	or 2SC4933	TRANSISTOR	
D03	RLS245	DIODE	
	or HSK83	DIODE	
D04	MA143A	DIODE	
D04	1SS302	DIODE	
R1	NRSA63G-203N	RESISTOR	20KΩ,1/16W
R2	NRSA63J-3R9N	RESISTOR	3.9Ω,1/16W
R3	NRSA63J-101N	RESISTOR	100Ω,1/16W
R4	NRSA63J-394N	RESISTOR	390KΩ,1/16W
R5	NRSA63J-913N	RESISTOR	91KΩ,1/16W
R6	NRSA63J-393N	REISSTOR	39KΩ,1/16W
R7	NRSA63J-160N	RESISTOR	16Ω,1/16W
R9	NRSA63J-113N	RESISTOR	11KΩ,1/16W
VR1	YQ31304-513	V RESISTOR,V.SIZE	
VR2	YQ30723-202	V RESISTOR,H.HOLD	
VR3	YU30595-116	V RESISTOR,CONTRAST	
VR4	YQ30723-204	V RESISTOR,BRIGHT	
R10	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R11	NRSA63J-512N	RESISTOR	5.1KΩ,1/16W
R12	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R13	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R14	NRSA63J-124N	REISSTOR	120KΩ,1/16W
R15	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R16	NRSA63J-180N	RESISTOR	18Ω,1/16W
R17	NRSA63J-335N	RESISTOR	3.3MΩ,1/16W
R18	NRSA63J-335N	RESISTOR	3.3MΩ,1/16W
R22	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R23	NRSA63J-561N	RESISTOR	560Ω,1/16W
R24	NRSA63G-913N	REISSTOR	91KΩ,1/16W
R27	NRSA63J-820N	RESISTOR	82Ω,1/16W
R28	NRSA63J-512N	RESISTOR	5.1KΩ,1/16W
R29	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R30	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R31	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R32	NRSA63G-123N	RESISTOR	12KΩ,1/16W
R33	NRSA63G-623N	REISSTOR	62KΩ,1/16W
R34	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R35	NRSA63J-104N	RESISTOR	100KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R36	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R37	NRSA63G-113N	RESISTOR	11KΩ,1/16W
R38	NRSA63G-114N	RESISTOR	110KΩ,1/16W
R39	NRSA63J-513N	RESISTOR	51KΩ,1/16W
R40	NRSA63J-472N	REISSTOR	4.7KΩ,1/16W
R41	NRSA63G-184N	RESISTOR	180KΩ,1/16W
R42	NRSA63J-162N	RESISTOR	1.6KΩ,1/16W
C1	YQ31304-502	E CAPACITOR	0.1μF,35V
C2	YQ31304-503	CAPACITOR	1μF,16V
C3	YQ31304-504	CAPACITOR	150pF,50V
C4	YQ31304-503	CAPACITOR	1μF,16V
C5	YQ31304-503	CAPACITOR	1μF,16V
C6	YQ31304-503	CAPACITOR	1μF,16V
C7	YQ31304-505	CAPACITOR	1300pF,100V
C8	YQ31304-503	CAPACITOR	1μF,16V
C9	YQ31304-506	E CAPACITOR	100μF,10V
C10	YQ31304-507	CAPACITOR	1500pF,630V
C11	YQ31304-508	CAPACITOR	2.2μF,35V
C12	YQ31304-509	CAPACITOR	3.3μF,50V
C13	YQ31304-510	CAPACITOR	220pF,50V
C14	YQ31304-511	CAPACITOR	0.047μF,50V
C16	YQ31304-506	E CAPACITOR	100μF,10V
C17	YQ31304-512	CAPACITOR	10μF,16V
C19	YQ31304-512	CAPACITOR	10μF,16V
HLC1	YQ31304-518	COIL	
⚠ FBT1	YQ31304-517	FLY BACK TRANS	
TH1	YQ31304-516	THERMISTOR	
CN1	YU30595-125	CAP HOUSING	
CN2	YU30236-115	CAP HOUSING	
CN3	YQ31304-522	CAP HOUSING	

SECTION 8
TECHNICAL INFORMATION

8.1 EMERGENCY DISPLAY

Whenever some abnoral signal is supplied to mechacon CPU, the POWER LED will be flickered and an error number (E05, for example) displayed on the electronic view finder.

E. VF DISPLAY	Symptom	Mode when observed	Resulting mode
E 06	CAPSTAN FG input absent	EDIT	STOP
E 05	PB CTL PULSE input absent	EDIT	STOP
E 04	DRUM FF input absent	DRUM rotation	STOP
E 03	REEL FG input absent	REC, PLAY, SEARCH FF	STOP
E 02	Mode control motor rotates for more than 10 sec. without shift to next mode.	UNLOADING	Mode continues
E 01	Mode control motor rotates for more than 10 sec. without shift to next mode.	LOADING	Mode continues

Emergency mode : Indication for 5 minutes, then power OFF
Port states : Same as Stop mode
Effective key : POWER
Shifted mode : Power OFF